Alfalfa and How to Grow it.

Published by
THE WING SEED CO.
MECHANICSBURG, OHIO

INDEX

And Table of Quantities Required Per Acre; Also Weight Per Bushel.

INTRODUCTION

Money does not come to people automatically, and neither does any kind of success, but if a merchant treats his customers fairly, giving every man an honest deal, and if he really has something of superior quality and worth buying, he is reasonably sure of success in building up a good-sized trade. In our own case, we worked ten years advising farmers how to grow alfalfa before we sold any seed, with the exception of small amounts which we furnished our friends and neighbors merely as an accomodation. Then we went into the seed trade as a business, offering our customers the benefit of more than ten years' experience with this plant, and knowing how to select alfalfa seed with a strong degree of certainty in all of our own selections. We spent each year, even in the beginning, from $1000.00 to $3000.00 telling our customers how to grow the plant, then we furnished them with the very best seed obtainable in the world, and gave every man an honest deal.

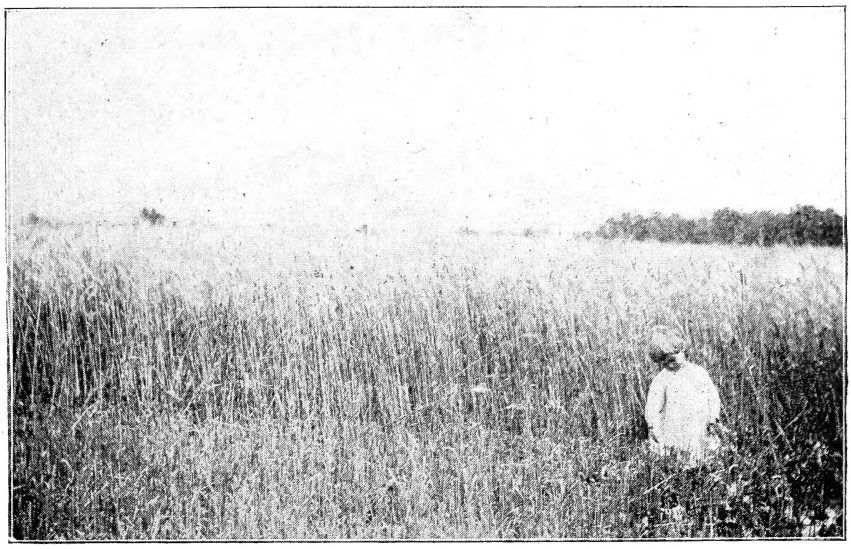
From alfalfa, our business grew to include seed corn and a full line of other field seeds, as well as garden seeds. It still requires the hardest kind of work each year to manage our business in a profitable way, but we have actually had good seeds to furnish our customers, and it has been entirely natural that our business should make the splendid growth which it has. Last year our customers showed their confidence in us by ordering 33 per cent. more seed than we sold in any previous year. Our average order increased in size, practically all of the Experiment Stations throughout the Corn Belt as well as in the Eastern and many of the Southern states, came to us for their seed. We sold to the Department of Agriculture at Washington, D. C., and we sold more very large orders than in any previous year of our history, some of the large corporations buying their seeds of us, one farmer buying over $2000.00 worth of alfalfa seed for his own use, and for that of his Experiment Station, another farmer buying about $1000.00 worth of our meadow mixture for his own use; and so on with many cases which we have not space to enumerate. It is not accident or good luck when a merchant secures a large amount of business from as particular a class of buyers as the Experiment Stations, the United States Government, or the large corporations. These men all demand the best, and they know before they buy that they are going to get the best; this is the class of trade that we wish to cater to.

Our seed corn is certainly making good. Last year we had not nearly large enough stocks to supply our entire trade, and out of hundreds of reports which we have received with regard to the seed which we sent out, we believe there has not been one which showed our seed to be of anything but the highest vitality, and in spite of the unfavorable season, by far the most of our customers secured favorable results from our corn, all over the country. Seed corn cannot be expected to succeed everywhere that it is taken, especially the first year, and the best of varieties cannot produce maximum crops under such conditions as prevailed over the most of the Corn Belt last year; but taking the reports which we have received as a whole, the results from our corn were very satisfactory.

Our soy beans proved equally satisfactory, and there seems to us to be no doubt that this is one of the coming crops. Out of all the soy bean seed which we sold last year, there were not more than a half-dozen partial failures, and this in spite of the fact that the season was not particularly propitious and of the fact that we probably sold more of this seed than all the other retailers put together.

We again wish to thank our customers for their confidence in us, and to assure them that we are doing everthing we can to make every seed which we sell the very best that is on the American Market.

THE WING SEED CO



GYPSY WHEAT—See Page 29.

GUARANTEE

While our seeds are selected with the greatest care we do not guarantee them except where it is definitely stated. However, we are perfectly willing that our customers should send our samples for analysis either to the Department of Agriculture at Washington or to your state experiment station, and we will also be glad to have them tested for germination.

PRICES

Prices of many of the grass seeds fluctuate so much in market that we have decided, instead of putting our prices in the catalogue at a high enough level so that we could be sure to maintain it throughout the season, to use the Price List, which is independent of the catalogue, and this will be found enclosed. We will change our prices as market conditions compel us to, thereby giving our customers the benefit of any fall in prices, instead of beginning the season on a high level and maintaining it throughout as some other seedmen do.

In order to take advantage of our Price Lists, orders should be sent us immediately upon receipt of them. It is probable that many of the grass seeds will fluctuate enough this year so that we will have to change our prices about once a week.

SHIPMENTS

Unless otherwise requested, we make all shipments the day following receipt of order. When requested, we will hold shipments a reasonable time, until customers are ready to have us make shipment.

IMPORTANT SUGGESTIONS

When ordering seeds of us be sure to specify whether you wish shipment made by freight or express. We have the Big Four railroad and the American Express only.

Be sure also to state your county and railroad, as this facilitates your shipment.

We sell absolutely for cash. We accept checks at their face value, drafts or money orders, but if cash in some form does not accompany your order it is our invariable rule to send C. O. D., or if by freight to attach sight draft to the bill-of-lading, payable upon arrival of the seed and after your inspection. This method of shipping whereby we attach sight draft to the bill-of-lading is very safe for our customers themselves, as they do not have to pay the draft until the goods arrive. nor do they have to pay at all unless the goods are satisfactory.

We are glad to answer questions and to help our customers with their farm problems. We ask our customers to help us, by writing their questions on a separate sheet, when ordering seed and asking advice at the same time. This will save us much time, which in our busy season we will greatly appreciate, and will expedite the answering of your questions.

ALFALFA or LUCERNE

Easily the "Queen" of all clovers, and of all the plants of the meadow, is alfalfa. It is the hardiest of them all, the most lasting, the most productive, the most efficient soil enricher. It is the most beautiful, and it yields hay of the highest quality.

Alfalfa is not new to the United States, but only within recent years has its culture been well understood, and a few essentials of its success been learned. It revels in dry land made sweet with lime (where this is needed), and rich with manures. Alfalfa is the most energetic soil enricher, of all the clovers, but it must find fertile soil on which to begin, and cannot, like sweet clover, begin on wornout lands. Once it is well established, however, its ability to build up the field on which it stands, and the adjoining fields (from the manure made by feeding the hay), is nothing less than marvelous.

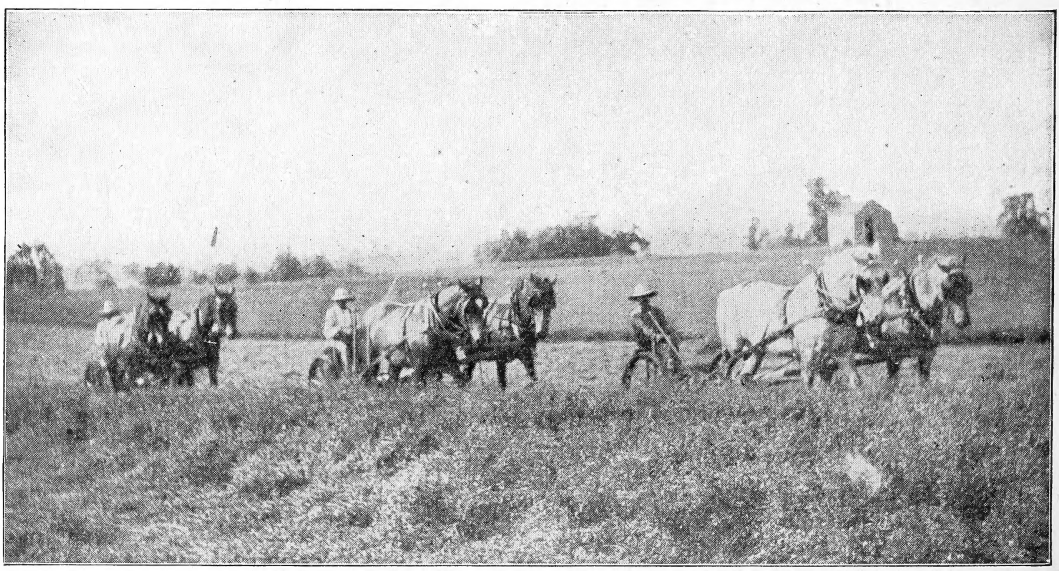
The New Jersey experiment station has shown that the yield of an acre of good alfalfa contained fertilizing ingredients that would cost on the market in the shape of commercial fertilizers at least $65.00. So it can be readily seen that once alfalfa is established on a farm, and the hay fed thereon and the manure saved, that farm must very rapidly increase in productiveness.

Alfalfa is a perennial, enduring on well drained soil from five to fifty years with one sowing. It may be cut from three to five times a year, and will yield, in the regions of the corn-belt, from three to six tons of hay per acre. The composition of alfalfa hay is such that it is almost the same nutritive value as wheat bran, and may be substituted for wheat bran in the ration of clover with good results. As a feed for all classes of live stock it is unexcelled. Every animal upon the farm loves alfalfa, and thrives upon it. As a pasture plant it has no equal in the amount of gain upon animals that may be made from an acre of it, as much as 600 pounds of pork per acre being frequently reported where hogs have grazed it. It is also the best horse pasture known, and is sometimes used as a pasture for sheep and cows, although one must observe due care in de-pasturing it with these animals since they may bloat.

As a soiling crop alfalfa easily heads the list. It yields the most herbage and of the highest quality, and indeed, it is much better for the meadow, and usually for the animals, to feed it off by soiling rather than by de-pasturing.

ALFALFA SEEDING—Much needless mystery has been made of the Alfalfa seeding question. So much mystery, in fact, that many farmers are afraid to try it at all. Jones recommends one method and Smith another, and how is the farmer to tell which is right? We began the study of the Alfalfa question twenty-five years ago, and since that time we have carefully watched fields of it in almost every state in the Union. We have corresponded with thousands of successful growers, and with thousands of other growers who were having troubles, and we really believe now that we are able to furnish reliable data as to just what is necessary to do in order to succeed with this plant.

We could almost sum the matter up in four words: Lime, drainage, humus, and inoculation. Perhaps we have given these in order of their relative importance. Lime is necessary on soils not naturally of limestone formation or filled with limestone pebbles. The importance of this is impressed upon us more and more each year; in fact, we believe today, that there have been more failures throughout the United States on account of insufficient lime in the soil than from any other cause. In order to make it easier for our customers, so easy that they cannot help succeeding, we give later on full instructions for the use of lime and a list of firms from whom the lime may be purchased.



MOWING ALFALFA ON WOODLAND FARM

Then as to drainage; there is no use in planting Alfalfa on any soil where water may ordinarily be found at a depth of less than three feet. The Alfalfa may grow all right until its roots strike this water but then it will probably die.

Fertile soil contains enough humus. Impoverished soils may be so deficient that special preparation must be made before Alfalfa can possibly succeed. Stable manure where obtainable is the very best thing for adding the proper humus to the soil; and we would urge its liberal use wherever possible. It might be best to use this a year in advance of sowing Alfalfa, and follow with clean cultivation to overcome what weeds might be sown with the manure, or a good way is to top-dress the Alfalfa during its first winter, using a manure spreader and applying the manure evenly without large chunks that might smother the young plants. On impoverished soils, we would recommend preparation for Alfalfa one or two years in advance, growing such crops as Crimson Clover, Mammoth Clover, Cow Peas, Canada Field Peas or Soja Beans, and preferably turning them under or else pasturing them off, so as to give the soil the greatest benefit possible from them.

We recommend inoculation, not that it is always necessary, but it is an inexpensive process, and in five cases out of six it will actually pay. This subject is fully discussed later on.

Having determined that our soil is sweet, well drained, and sufficiently supplied with humus, the only questions that remain are: The preparation of a good seed-bed, sowing at the proper time of year, and the use of good seed. For the seed-bed, it is essential that the ground be carefully fitted. It must be plowed, unless it is old ground, such as corn stubble, which may be thoroughly disked instead of plowing. It is better to firm the sub-soil a little, so that only the surface is really loose. This, because if the entire soil is very loose, the seed may be planted too deep, and also because the Alfalfa seems to prefer the sub-surface being a trifle firmed.

TIME OF SEEDING—On Woodland Farm, for many years it has been our custom to sow Alfalfa at oat-seeding time about the first week in April, using Beardless Spring Barley as a nurse crop. The Barley is usually cut for hay the last of June, and after this we sometimes secure a good cutting of Alfalfa hay the first season, although we do not count on this, and are not disappointed if we do not obtain it. We sow about three to five pecks barley to the acre, on real rich ground not more than one bushel, and eighteen to twenty pounds of Alfalfa seed at the same time, usually using a disk drill and throwing the Alfalfa seed in front of the drill, unless the ground is very loose, in which case we throw the seed farther back to prevent its being covered too deeply. The Alfalfa seed should be covered about an inch. The advantages of this system are that the rains usually come about the right time for the young Alfalfa, which makes a strong growth throughout the entire season, generally giving us with the barley enough hay the first year to pay the expenses of planting, and goes into winter into vigorous shape with about ten inches or a foot of stalk standing, enough to hold the snow throughout the winter and induce a fine vigorous start in the spring. We find barley to be the best nurse crop obtainable. It takes the place of the weeds that would otherwise come, gives us some very excellent feed, and with us, does the Alfalfa good and no injury. Oats are not so good, because they shade the ground more and are much more inclined to lodge. We find that the barley hay with the small amount of Alfalfa we obtain with it makes a forage second only to the pure Alfalfa itself. We cut this when the barley is in the milk or dough stage. It is not always necessary to cut the barley for hay, as it ripens its grain about July 12th in this latitude, and it is rarely that Alfalfa is suffering much by that time. Many of our neighbors cut their barley for grain, and still secure admirable stands of Alfalfa. Where no nurse crop is used, it is seldom safe to plant Alfalfa before the 20th of June, because the weeds will almost certainly choke the young plants, and no amount of mowing will prevent their doing so.

Many of our customers prefer seeding during the summer months, and this is certainly a very excellent way, frequently succeeding as well as our own, although sometimes failing on account of summer drought preventing the young plants from obtaining sufficient growth to go through their first winter. Many farmers become prejudiced against the early spring seeding, owing to their using oats as a nurse crop, but if they would use the Beardless Barley, they would doubtless be well pleased with the earlier sowing.

For summer seeding we recommend as a good method having the Alfalfa follow a crop of early potatoes, or it may be possible to plow wheat stubble early enough to secure a stand before winter. An excellent way is to plow the ground early in the spring, harrow it as frequently as the weeds appear, and sow the Alfalfa during July. If the rains come right, such Alfalfa should make excellent growth before winter and be certain to succeed. We really believe that where Beardless Spring Barley may be used as a nurse crop, the early spring seeding is advisable in the states of Ohio, Indiana, Illinois, Michigan, New York, and much of Pennsylvania. The late seeding is certainly preferable in some of the New England states, in Virginia, and the states south of the Ohio river. The reason for the late seeding in these states is that their climate seems to be such that the Alfalfa thrives better when sown late than when sown early, and also in part of these places quack or crab grass and other weeds will give so much trouble that the early seeding is almost sure to fail on account of them. The farther south one goes, the later is it safe to seed Alfalfa. We have many customers in Georgia, Alabama, Mississippi, Louisiana and Texas, who seed as late as November 1st, but their winters are so mild that the Alfalfa never winter-kills, and it comes on the next spring in just as good shape as if it had been sown earlier in the season.

FERTILIZERS—We find that on nearly all soils phosphate does Alfalfa more good than any other fertilizer. We recommend basic slag on soils that are acid, and where you do not wish to sow lime or untreated phosphate rock on limestone soils that are not acid. For the quickest and best results on these limestone soils, use one hundred pounds acid phosphate and nine hundred pounds untreated phosphate rock per acre. The untreated phosphate will absorb acid from the acid phosphate, and the combination will make the quickest results of any form of phosphate

which can be applied. Also, applying this way, the superfluous acidity being taken up by the raw phosphate, there will be no danger of making your land sour. Good barnyard manure as a fertilizer for Alfalfa cannot be beaten; it should, however, go hand in hand with the phosphate; neither is complete without the other. They should be applied at the same time for best results.

We can furnish the acid phosphate, the untreated phosphate rock, and the basic slag, in any amounts ourselves. The basic slag and untreated phosphate rock we can furnish to Ohio customers.

SEED—Good seed is of great importance. We have studied Alfalfa for so many years that we pride oursedves very much upon our ability to choose the very best seed. Alfalfa seed coming from Arizona, South America or Arabia, will grow all right the first year, and then will probably winter-kill the first winter, especially in any of the Northern states. We find that the very best seed in the world, that which is freest from dangerous weeds and which possesses the greatest vitality, is produced in our own United States, particularly in the northwestern part. Also it is better if grown on non-irrigated soil. All of our seed comes from these Northwestern states, is non-irrigated, and we cheerfully guarantee it free from Alfalfa's most deadly enemy, the dodder. When you receive seed from us, send sample to your Experiment Station, and if they detect any dodder in it, return the seed immediately, and either get your money back or more seed. If they find any trefoil, you may do the same thing. Trefoil is a harmless little clover, but it is added to the Alfalfa as an adulterant, owing to the seed being inexpensive and difficult to distinguish from the Alfalfa seed itself.

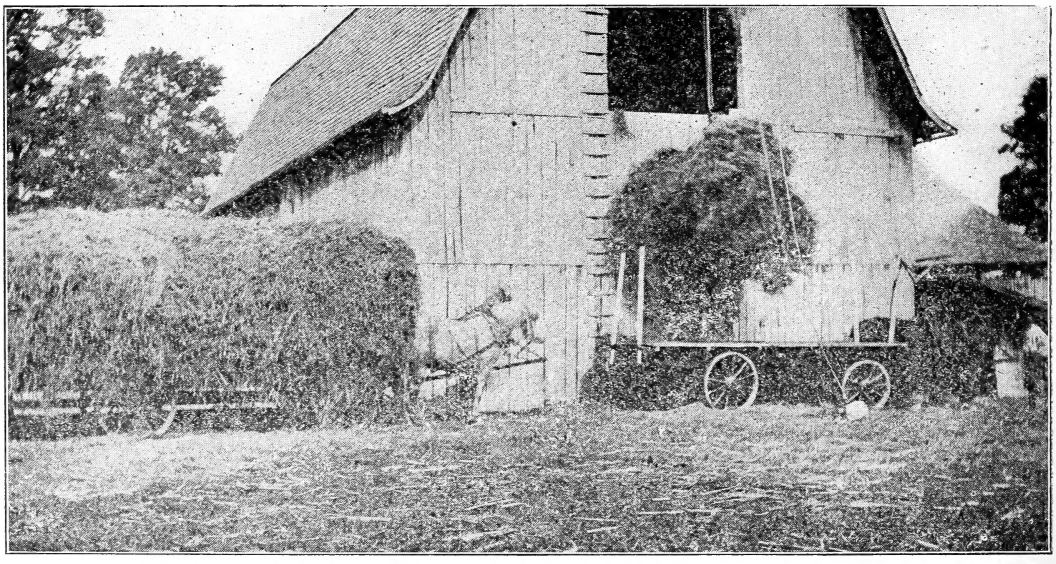
We feel that we have just cause for being proud of our Alfalfa seed, for each year we sell to practically all of the Experiment Stations and agricultural colleges in this and adjoining states and to the U. S. Government at Washington, for experimental work. No class of buyers is so particular as this.

In some of the far Southern states, an enemy constantly to be fought is the Johnson Grass. In some of these states Alfalfa seed is produced, and is very likely to be mixed with this pest.

We guarantee our seed absolutely free from this Johnson grass, and growers in any country who are troubled with it, may with perfect confidence purchase our seed.

ALFALFA FOR THE POULTRYMAN—The poultryman will find great profit from having a run of Alfalfa. This should not be too small a space, but large enough so that the poultry can forage at will without injuring the plants, and so that he may cut the hay regularly and save it for winter feeding. Poultry thrive upon a diet composed chiefly of Alfalfa, with some grain in addition.

ALFALFA FOR THE DAIRYMAN—No other food forms so good a basis for the ration of a dairy cow as alfalfa, the reason being its extreme richness in protein, and its easy digestibility, and the additional reason that the cows love it so, and it so greedily. Alfalfa growing countries have a great advantage over other countries in the dairy business, so that it is well for the dairyman, wherever he is situated, to begin to consider how he may make his own soil an alfalfa-growing soil. It has been found that the cost of milk production can be cut square in two by the use of home-grown Alfalfa. A ton of Alfalfa hay, early cut and nicely cured, is worth as much pound for pound as the best wheat bran for food for the dairy cow. In order to get its full feeding value, it should be ground. Even ordinary Alfalfa hay is worth nearly as much as wheat bran; so that it is clear to the Eastern dairyman, who must pay $25.00 a ton for wheat bran, a field of Alfalfa yielding no more than three or four tons per acre is a veritable gold mine. Governor Hoard has found



UNLOADING ALFALFA HAY
Using Louden Machinery

that with Alfalfa in the dairy ration, it is necessary to use only about half the amount of grain that must be fed when other forage is provided. In truth, with Alfalfa hay and corn silage, little or no other food is needed to keep the dairy cow in the most profitable producing condition. We thus emphasize the importance of Alfalfa to the dairyman, because among the many thousands of Eastern dairymen, the margin between cost of production and selling price of their products is so small, that they are in a rather discouraging condition, and this condition Alfalfa will relieve better and easier than any other thing. There was a time, only a few years ago, when it would have seemed not worth while thus to attempt to raise the hopes of the dairyman, for then it had not been demonstrated that Alfalfa could be grown away from the "Alfalfa Belt." But since then we have learned the few and simple requirements of the Alfalfa plant, and now we do not hesitate to affirm that we can grow Alfalfa anywhere, upon any farm in the United States, not at too high an altitude if the few simple but essential conditions are complied with.

TIME TO CUT ALFALFA—We usually cut it when about one-fifth of the plants begin to show bloom. A somewhat better way of ascertaining the proper time is to watch for the buds at the base of the plants and cut when they appear above the ground. These buds are the beginnings of new stalks, and their appearance indicates that the plant is ready to make another crop.

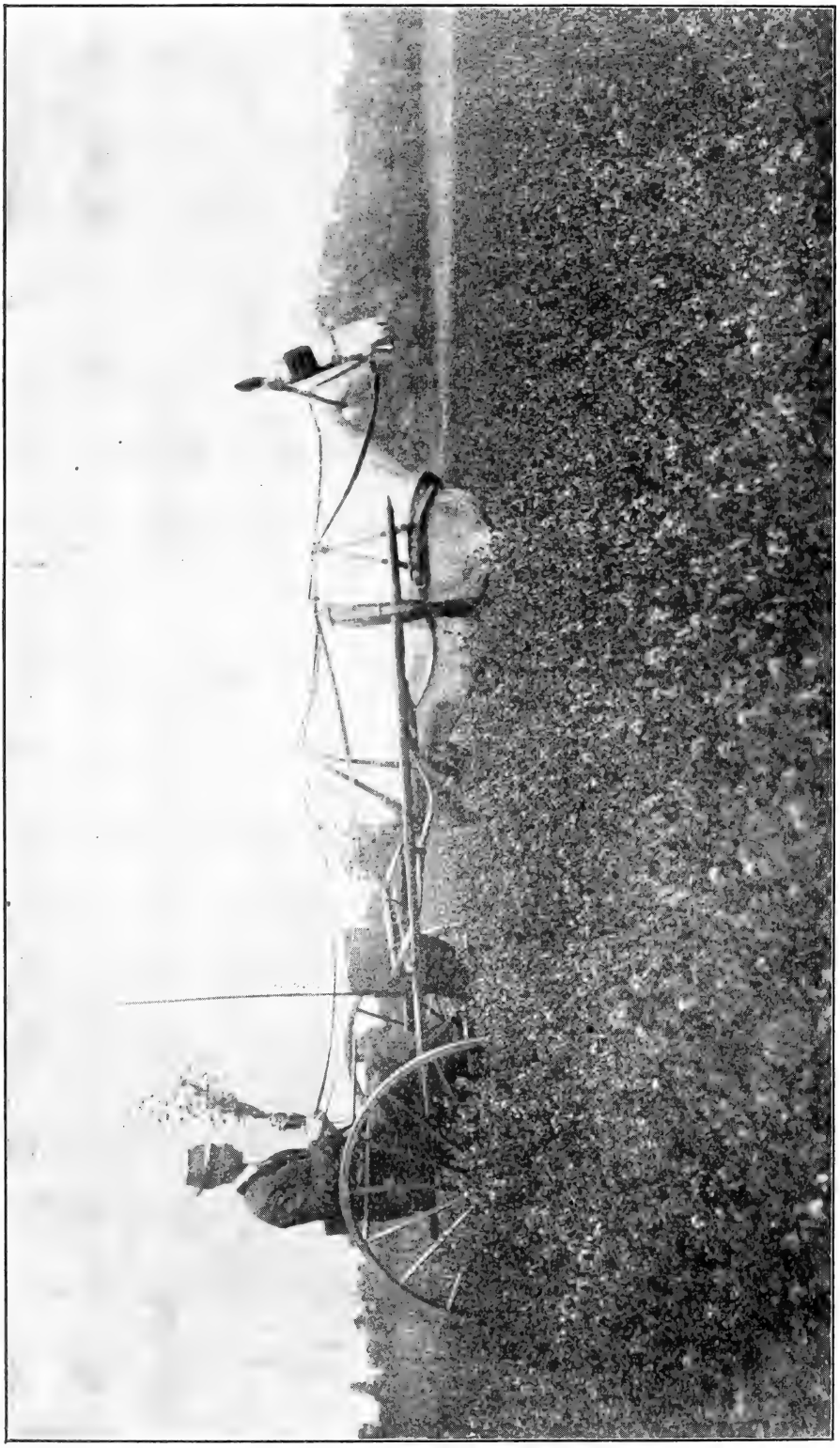
ALFALFA AS A PASTURE CROP—It is especially adapted to being de-pasturized by horses and hogs, and perhaps the greatest profit comes from such use. The practical difficulty with de-pasturizing Alfalfa with sheep and cows is, that being a clover, it sometimes causes bloat, similar to clover bloat. The best preventive of bloat is to have the Alfalfa mixed with grasses in the pasture. When this is done, the animals eating the two together are very much less apt to bloat. The best grass to mix with Alfalfa for pasture is brome grass (Bromus inermis.)

In pasturing Alfalfa, to get the best results, one should not turn on it before the plants have grown nearly to the blossoming stage; furthermore, the pasture should be so large that the animals will not eat it down closely. It should be mown at least twice during the season and made into hay. It will not do, however, to pasture the field with sheep or cattle immediately after it has been mown, this being the surest known method of inviting disaster. After Alfalfa is mown, it is not safe to turn onto it until the plants have reached the woody stage. Thus treated, Alfalfa pastures will last for years, and afford an astonishing amount of nourishment.

All stock should be taken off of Alfalfa pastures by the first of October, or in the Eastern states, at the beginning of hard frosts; this, both for the good of the Alfalfa and for the good of the animals themselves. It is dangerous to de-pasturize frozen Alfalfa, and it is not even wise to cut it for hay. A profitable scheme sometimes practiced is to break an old Blue Grass pasture, plow it rather deep, fertilize it well, and seed it down to Alfalfa. A good stand of Alfalfa is almost assured by this method, and while the blue grass comes up immediately and fills in between the Alfalfa plants, within a few years, the amount of combined herbage yielded by this practice is almost incredibly great, the grass itself yielding more than it did before the Alfalfa was sown upon it. Alfalfa thus sown will not last as long as when the grass is absent, but while it is there it is extremely profitable.

In any of the states east of the Missouri, we think that farmers who pasture Alfalfa with cattle and sheep may be reasonably sure to have some losses, no matter how careful they are. We have never succeeded in pasturing it ourselves without some losses, but we believe that it is sometimes more profitable to pasture Alfalfa and lose a few sheep or perhaps a steer, than it is to handle our stock on other feed without this loss.

ALFALFA ON WOODLAND FARM, OWNED BY J. E. WING & BROS. ABOUT TWO TONS PER ACRE THIS CUTTING, WORTH $10.00 TO $15.00 PER TON.



Alfalfa raised with Thomas Phosphate Powder on the sands of Long Island, N. Y.
(Raised by Mr. Jas. Mahon on the farm of Paul D. Cravath, Esq.)

ALFALFA TURNING YELLOW—This may be caused either by a leaf spot or rust, or it may indicate that conditions are not right with the plant, that it needs lime, drainage or inoculation. Mowing will usually check the rust; the other troubles are fully discussed later on.

INOCULATION—All legumes have tiny bacteria that work on their roots, forming "nodules." These bacteria draw nitrogen from the air, and both supply the plants with it and also add it directly to the soil. Without these bacteria the legumes will soon perish, although most of the legumes seem to find their proper bacteria in almost any soil. Alfalfa is an exception, and it nearly always pays to supply its bacteria artificially. This may be done very inexpensively. Obtain soil from some nearby Alfalfa field and apply it at the rate of one hundred pounds per acre, sowing it late in the afternoon and harrowing it in immediately before allowing the sun to strike it. This is the best way to inoculate. Soil from around the Sweet Clover or Melilotus roots answers equally well. The Government will furnish inoculation of another sort free; this usually succeeds, but not always. Another excellent way is to sow a few pounds of Alfalfa seed with your Red Clover. After the clover is plowed up, sow to Alfalfa, and you will probably have the field inoculated.

We have many requests for soil from our own Alfalfa fields, but we are forced to refuse to sell this.

Dr. H. Somerville, Chest Springs, Pa., whose advertisement appears elsewhere in this catalogue, is prepared to furnish inoculated soil, and we advise our customers who want inoculation to write to him.

LIME IN THE SOIL—Alfalfa thrives best on soils that are most abundantly supplied with lime. It absolutely fails where lime is deficient. Nothing will take the place of lime, and we believe that there have been more failures throughout the Eastern States owing to this deficiency than from any other cause.

KINDS OF LIME—Ground limestone is now manufactured in many places in the United States, and sold usually, where made, for about $1.25 per ton. The finer it is ground, the more quickly is it available. It should be applied at the rate of about one hundred pounds per square rod, which is at the rate of eigth tons per acre; although where it is inaccessible, and therefore costly, much lighter applications are used with good results, although not so lasting. Sometimes one may get crushed limestone screenings, much of it as fine as sand. This stuff is used for concrete work, walks and ballast, and often may be bought as low as 50 cents per ton or less When the ground limestone is not available, and this coarser material is, we advise its use. Put on more of it, and eventually every bit of it will become available. It will last for many years in the soil, giving out its beneficial influence constantly. Many farmers having ledges of limestone upon their land can well afford to grind their own limestone at home; and a machine capable of grinding a little more than a ton an hour and taking in stones 11x13 inches in size costs about $600.00. These machines are very durable and the expense of operating them quite light. Various firms manufacture this machinery. To save correspondence, we will mention the Jeffrey Manufacturing Co., of Columbus, Ohio, who make suitable grinders for farm use, and the Pennsylvania Crusher Co., Machinery Building Pittsburg, Pennsylvania, The Eureka Stone & Ore Crusher Co., Cedar Rapids, Iowa.

METHOD OF SPREADING LIME OR GROUND LIMESTONE—Heretofore, one of the geratest bugbears to applying any form of lime was the difficulty and expense connected with its application. The ordinary lime spreader cost $40.00 or over. It would hold only a sackful or two of lime, thus causing repeated trips to the wagon for more material; and by the time one had used it a short time, he was thoroughly limed himself. This machine, when used for spreading ground limestone, again caused much annoyance, because it did not hold enough material, and in addition, it would spread only moderate amounts per acre, thus necessitating going over the ground at least twice.

Last year we accepted the agency for a new machine which was placed on the market for the first tme. This machine has proven all right in theory, although being the first season for it, there were some little defects which had to be remedied, As this catalougue goes to press, the manufacturer is still working to get the machine absolutely perfect, and he assures us that his new model which is practically completed now, is giving him the very best satisfaction. We expect by the time this catalogue reaches our readers, to have the exclusive agency for this machine, and to be ready to furnish the machines in any quantity. The machine is intended to hook onto an ordinary wagon-bed, wooden friction wheels rubbing on the rear wheels of the wagon operating the machine. It is especially designed for handling ground limestone in large amounts. It will easily handle ten tons or more per acre with one application. It may be readily reduced so that it will handle only one thousand pounds per acre, but when trying to reduce it to smaller amounts than this, unless you have some ingenuity, it may not prove entirely satisfactory, because the principle of the machine is for applying large amounts and not small ones. We feel confident it can be used satisfactorily on rock phosphate when you wish to apply one thousand pounds per acre, which is the proper amount to use anyway. Price $25.00 f. o. b. Mechanicsburg, Ohio. Write us for particulars.

OTHER FORMS OF LIME—When limestone rock is burned, the carbon is driven off, and caustic lime remains. Burned lime has lost about one-half its weight, so that a ton of burned lime has as much power to sweeten soils as two tons of unburned or carbonate of lime. The one difficulty wth burned lime is that it has this caustic nature, and is said to destroy part of the humus of the soil. Burned lime is more easily secured, and the freight rates on it are often less than with the ground limestone. From one to two tons per acre of the caustic lime are used. It may be ground very easily after being burned, and then drilled into the soil; or it may be slaked with a little water so that it falls into a white powder, and then distributed. "Agricultural lime," often sold at absurdly high prices, is simply burned lime slaked and ground, and is in no way better than the lump that any farmer can slake at home.

AIR SLAKED LIME—If you do not use ground limestone, air-slaked lime is the only thing that you should use. It requires one and one-half to two tons of it to do as much work as one ton of caustic lime, but while caustic lime attacks the humus of the soil, air-slaked lime probably does very little injury in this way. We do, however, recommend that this lime should have not less than six months' time in which to air-slake, and a year would be still better. In this time, if the lime is well burned, all the lumps should slake, making it much easier to apply, and also very much safer to use on your ground. We advise using air-slaked lime at the rate of two to four tons per acre. It is unwise to sow lime and acid phosphate at the same time, as the lime would neutralize the phosphate; probably this would not apply to untreated phosphate rock.

LIME NOT EVERYWHERE NEEDED—Because of the wide-spread interest in Alfalfa and lime, we get letters asking about the application of lime, from regions where we cannot think lime is needed. Hardly anywhere is it needed in the arid region, in the Dakotas, in Nebraska, perhaps nowhere in alkaline soils; probably not in any place where limestone gravel is mixed through the soil by the glaciers, would additional lime be especially needed. When it is somewhat difficult to get stands of red clover; when "sorrel" comes in the land, and crab grass crowds out the alfalfa, when the alfalfa plants come in have a sickly yellow appearance instead of a dark vigourous green; then one may safely assume that lime is needed; and in the humid regions of the East, wherever Kentucky blue grass and white clover is not the natural carpet of the soil, Alfalfa growers should take heed of the need of more carbonate of lime before sowing their seed.

ALFALFA AND TILE UNDER-DRAINS—The question is often asked: "Will Alfalfa stop tile under-drains?" On Woodland Farm with probably eighteen miles of tile under-drains, only a few hundred yards have given trouble from being stopped with Alfalfa roots. These places where trouble has occurred are where running water flows through the tile continuously from perennial springs. In no instance has the Alfalfa given trouble to ordinary farm drains where the tiles become dry in summer.

A THIN STAND OF ALFALFA—It rarely pays to try to thicken Alfalfa. The seed will usually come up all right, but for some reason it will mostly perish throughout the first season. Disking will make the Alfalfa stool our more and thereby help the stand, or Clover may be sown with the thin Alfalfa with good results.

Another very excellent method which we recommend is plowing the Alfalfa up, and plowing it quite deeply. This will not kill nearly all of the young plants. Then immediately re-seed, and the second time you will be almost certain to secure an excellent stand of Alfalfa.

WEEDS IN ALFALFA—Good soils are frequently stored with weed seeds; yet a thorough cultivation of the ground the year preceding the sowing of Alfalfa will accomplish much. Ordinary weed seeds are pretty well destroyed by the mower running over the ground two or three times the first season. Canada thistles are said to be eradicated by the growing of Alfalfa, and many other serious pests including Convolvulus Arvensis, variously styled Bindwood, Wild Morning Glory or Wild Pea Vine.

ALFALFA ON WOODLAND FARM. OVER TWO TONS PER ACRE THIS CUTTING

Sometimes a little Sweet Clover (Melilotus) is unavoidably present in Alfalfa seed. This need give no concern, since the natural mowings given the Alfalfa will eradicate it in two years. There are weeds, however, that will get the better of Alfalfa, and that right speedily. One of the worst is dodder. Not many farmers know dodder when they see it. It is a parasitic vine having an almost leafless yellow stem as large as a small twine string, which runs through the Alfalfa, twining around the stems, sending little rootlets in to suck the juice of the plant. Dodder begins its life from a seed dropped to the earth when the Alfalfa is sown; but after having had a brief experience with its roots in the soil, it leaves the earth and roots only in the growing Alfalfa, which it binds together in a death grip, making a dense tangle of yellow vines and slowly dying Alfalfa plants.

Farmers cannot afford to treat dodder as they would any other weed. It is so deadly that it must be stamped out immediately, or it will become a very serious pest, and the methods used to exterminate other weeds will not answer for this one. If there are only occasional small patches to be found, mow the Alfalfa in these patches before the dodder begins to bloom; then, in a few days, scatter straw over the infested areas, and burn it. This may kill the Alfalfa plants, but it will probably kill the dodder also. If your field is badly infested, there is nothing to do but to plow it up, and plant it to corn or some cultivated crop for one or two years.

Dodder infests clover just as frequently as it does Alfalfa, and it is just as dangerous in the clover as it is in the Alfalfa. Farmers should take great pains to prevent this pest from becoming established in their land, and should send samples of their seed to their Experiment Stations for analysis before seeding.

Our own Alfalfa seed and also our Clover seed are guaranteed free from this pest. If your Experiment Station finds any dodder in our seed, we will gladly take back the seed and return your money.

ALFALFA IN CORN—We cannot recommend seeding Alfalfa in corn at the last cultivation, as many wish to do, because the corn nearly always shades the Alfalfa so much that it will not thrive until after the corn is cut; also the corn takes practically all of the moisture from the soil, causing the Alfalfa to suffer from drought; and it usually happens that we have most of the dry weather between the time of the last cultivation of corn and fall, so that all three of these causes will operate against the Alfalfa. We have seen many splendid successes from this method, and many failures. We think the chances of success by this method to be about equal to the chances of failure.

MAKING ALFALFA HAY—Alfalfa hay must be cured in the same manner as Red Clover, with this difference, that as the leaves of Alfalfa when dry are extremely brittle, care must be taken to prevent their loss. This simply necessitates raking the hay when still quite tough, and it should also be shocked before it is bone dry. Alfalfa hay will cure admirably if raked quite green, shocked immediately, and allowed to stand in the shock for several days. If this method is used there will be very little loss from storms, and the hay will be of the finest possible quality. Hay caps may be used, if desired, with excellent results. When the hay is cured in the shock, open up the shocks to the sun and air for an hour or so before putting the hay into the barn. Alfalfa hay will stand more punishment from storms than any other hay that we know of. It will also keep excellently in the stack, although we think it a little more difficult to stack than Timothy hay. It may be put in the stack or mow with a trifle more sap than any other kind of hay. A safe method of ascertaining whether it is sufficiently cured to go into the stack or barn is to twist the stalks, and if no water appears the hay is in safe condition to go into the barn.

Alfalfa hay usually heats somewhat and becomes discolored, but stock relish this discolored hay fully as much as if it were of perfect green color. In stacking, we now use cables in preference to a hay derrick. We have a Louden Jr. cable carrier, which gives perfect satisfaction, and we are using a Louden grapple fork for unloading from hay sleds, and find this to be the most satisfactory fork for this purpose. At the barn we unload with a Louden Jr. carrier, using a triple hitch to the rope; this permits the use of only three-fourths inch rope, a very satisfactory size. We use either the Louden grapple forks or the new Myers double harpoon fork, one at each end of the load. The new Myers fork is hinged in the center, and does not become bent out of shape as the old style harpoons did. Then, we put the sling in the bottom of the load for cleaning the wagon. Using this outfit we have not trouble in unloading two or three thousand pound loads of Alfalfa hay with three or four hitches of the fork.

A SPLENDID SUCCESS UNDER DIFFICULTIES—The experience of Mr. J. F. Jack of California, is inspiring. Some years ago, Mr. Jack purchased a fifteen hundred acre tract of wornout land on the tidewater of Old Virginia, not far from Fredericksburg. The land was practically exhausted, but it was low-priced, labor was plentiful and cheap, and the great Eastern markets were close at hand. He consulted the authorities at Washington, who did all they could to discourage him from so large an undertaking, predicting for him a colossal failure. But he was not to be discouraged, so they gave him all the advice and help they could, but with no confidence in his success. Mr. Jack began with a hundred and fifty acre tract, to which he applied four hundred tons of lime. He sowed crimson clover and turned it under to add humus. He applied a good amount of bone meal, and sowed thirty pounds to the acre of the best Alfalfa seed. He left some strips in this tract, on some omitting lime, on others bone. On this tract he secured a splendid stand, with the exception of the strips. On the strips where no lime was sown, the Alfalfa failed utterly; on the strips where lime was sown, but no bone, the Alfalfa did not completely fail, but the stand was not nearly so good as on the main portion of the field where both bone and lime were used. Since this time Mr. Jack has enlarged his meadows each year. He now has between one and two thousand tons hay each year, and each year he successfully sows new fields to Alfalfa using the same system that he did in the beginning, and so far he has never had a failure with any of his seedings.

WHERE TO SECURE ALFALFA HAY—The story of Mr. Jack reminds us that nearly every day in the year we have inquiries as to where Alfalfa hay can be secured. If our friends who wish to purchase Alfalfa hay, live anywhere near this region, they would do well to write to Mr. Jack's foreman, M. Zimpelman, at Port Conway, Virginia.

ALFALFA SCREENING FOR POULTRY FEED—This is a by-product of Alfalfa, consisting of stuff cleaned out of our Alfalfa seed. It contains a good deal of light weight Alfalfa seed, a few weed seeds, chaff, broken leaves, etc., and makes an excellent poultry feed used as a wet mash. Our price is 1c per pound. We will not sell less than fifty pounds.

INOCULATED ALFALFA SOIL

Especially prepared for inoculating new land for the growing of Alfalfa. 75c per cwt., or $10.00 per ton, f. o. b. cars. Send for free booklet "How to Grow Alfalfa." Dr. H. Somerville, Chest Springs, Cambria County, Pennsylvania.

CORN

No one needs to be told of the importance of the corn crop. All we care to know is how to grow the most of it, the varieties most certain to produce well, and those having a fair percentage of shelled corn. We are all studying these questions very carefully. The up to date farmer knows, both from his own observation and from the teachings of corn experts all over the country, that maximum yields depend upon absolutely established laws. We might mention these briefly. Fertility of the soil, the condition of the seed bed and the tillage after planting, and climatic conditions. These conditions depend upon the farmer himself, and upon nature. The other laws influence the grower of corn for seed purposes. These might be named as the effect produced by the ear-to-the-row test plots, the effect produced by too close breeding or inbreeding, by cross-breeding and by selection of the proper types both of ear and stalk, and selection of large ears from hills of three. Taking these points backwards, it has been positively demonstrated time after time that a large ear growing in a hill of three stalks contains enough inherent strength to reproduce itself and make a heavier yield than another ear equal in size but growing in a hill of only one stalk. This is one way in which everyone is likely to err when selecting seed corn from the field. Usually this seed is selected from the piles of husked corn, and frequently the large fine ears selected come from hills containing only one stalk. The only way that one can get the maximum out of his corn it to go through the fields before husking, and select large fine ears from hills containing three stalks. This we are doing now with all our varieties of corn.

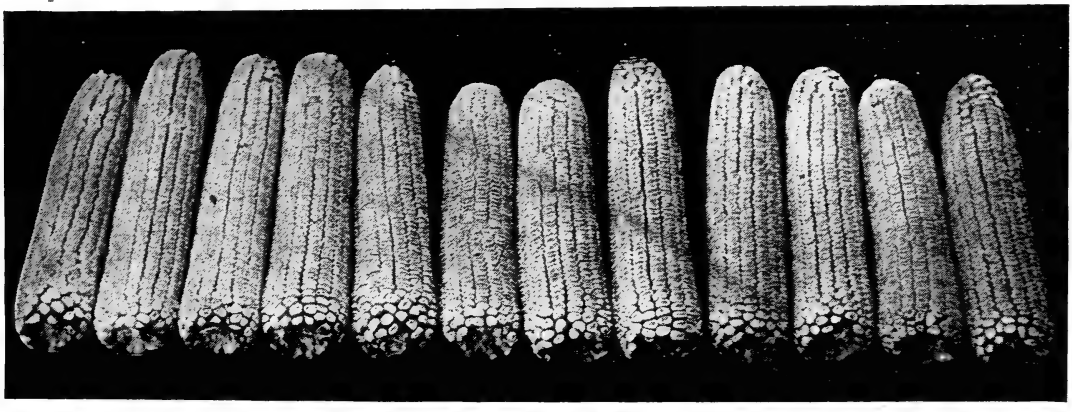
Cross breeding, that is, crossing two distinct breeds of corn requires a great deal of skill, and the ordinary result produced is a variety of corn so lacking in uniformity that it will take many years to make it look like all of one breed. By far a better way of securing a fine character of corn is by selection and breeding in its own variety only, but improving this variety up in any desired way until it meets with your approval. Probably it is possible to breed corn too closely, and weaken its vitality, just as it is possible to inbreed live stock, although in actual practice we think this danger might easily be exaggerated. At any rate fewer mistakes of this sort come under our notice than with the indiscriminate crossing of two breeds, or of injudicious selection. The ear to the row test plot is widely used, and its principles are very well understood by most intelligent farmers today, most of them appreciate the improvement which can be effected in corn by this method, and a great many farmers are employing this system largely to improve their corn. Briefly, this system consists of selecting the very best ears possible, planting half of each ear in a separate row with a stake showing the number of the ear, the other half of the ear being retained, numbered to correspond with the stake, and used at the end of the season for comparison, as well as for planting the second year whenever one finds an ear that is giving particularly good satisfaction. The yield of each ear is weighed at husking time, and it is then a very simple matter to select seed not only from the highest yielding rows, but from rows having the greatest quality and the most satisfactory date of maturity. We fully believe that it is possible by the use of this ear-to-the-row test work to accomplish as much in one year as can be accomplished in five years by any other method. Ordinarily we find that the various rows will have a variation of from fifty to one hundred and fifty bushels per acre. This can indicate only one thing: that there are high-yielding strains even in the best appearing corn. It is almost impossible to select corn that will certainly be the heaviest yielder. Only careful breeding and weighing of the crop can determine to a certainty what the corn that we are breeding will actually produce. All of the corn that we are selling is now being handled by this ear-to-the-row test work; and we are thus certainly improving the yield as well as bringing the quality and the time of maturity to suit our ideas.

Hybridizing, hand pollenization, and detasselling of alternate rows in test plots are all more or less recommended by corn experts, although with a little disagreement as to the results actually obtained by these methods. What we are doing to improve seed corn is ear-to-the-row test plot work, selection of corn all from one breed instead of crossing breeds, and selection of large ears from hills of three to grow in test plots and multiplying plots. All these methods are absolutely known to produce good results, and to improve the corn in yield and quality whenever they are carefully and properly corried out, and we feel that in doing this work we are doing practically everything that man knows how to do today in securing the greatest yield, the finest quality, and the proper date of maturity. Our constantly increasing sales of seed corn surely indicate that our corn is making good, and the thousands of letters we receive from pleased purchasers emphasize this. All of our corn is selected early in the fall, just as early as husking can possibly commence. It is then taken into our large, steam-heated warehouse, placed in

crates in such a manner that the corn does not touch itself and that perfect ventilation is secured, or much of the corn, especially when coming in very early in the fall, is strung and hung from the joists until thoroughly dried out, before being placed in the crates. Then, when it is thoroughly dried, the corn which is meant for shelling is re-sorted, every ear which does not suit us is thrown out, the butts and tips are shelled off and sold to the elevator, the rest of the ear being shelled and graded, all irregular grains being removed, and the corn placed in condition to use with an edge drop planter. Customers visiting our warehouse at shelling time can hardly believe their own eyes or senses when they find how absolutely dry this corn becomes. Some years our seed corn which when coming into the warehouse is so dry that it shells readily in handling and crating will shrink 33 per cent. before time for sending it out. Shelling off the butts and tips removes 10 per cent. of the weight of the corn, the grader frequently removes another 10 per cent., the frequent handling and re-sorting which the corn receives discards still more, so that by the time this shelled corn is ready to go to our customers, it has actually cost us quite a high price.

FORTY-FIVE ACRES THAT AVERAGED 100.1 BUSHELS PER ACRE

WING'S IMPROVED WHITE CAP CORN—We have been growing this variety on our farm for fifteen years continuously, and it has received more attention and work from us than the other varieties which we handle, because we were growing this corn and improving it for our own use years before we ever thought of selling the seed. This corn at some time before we secured it, was cross-bred, being a pure white and pure yellow crossed. The result is a variety with the grain mostly white, but showing a tinge of yellow throughout, cobs sometimes red and sometimes white. Personally we are partial to a white cap corn, because the white blood contained in it makes it adapted to poor soils, while the yellow makes it early maturing. This variety has been tested beside many other breeds of corn on our farm, and has never been outyielded by any of them. We consider it the safest and surest kind

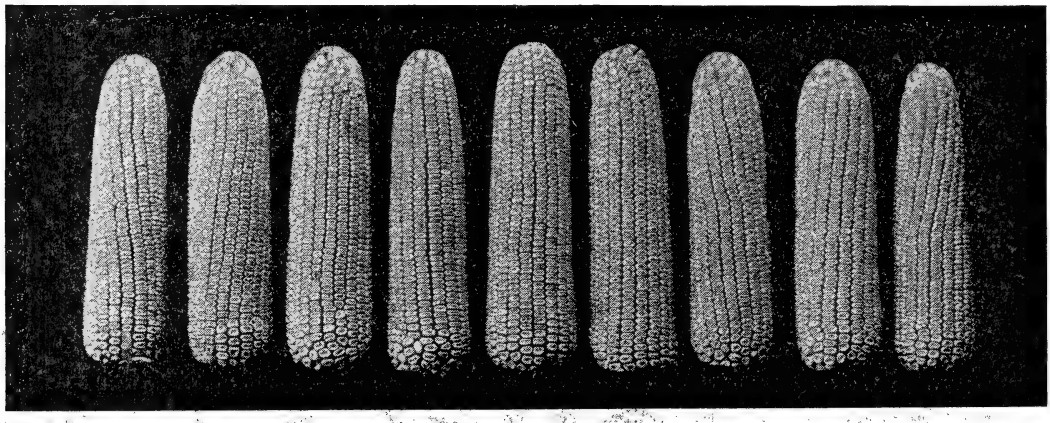


WING'S IMPROVED WHITE CAP CORN

Three acres of this variety has yielded for us one hundred and forty-seven bushels per acre.

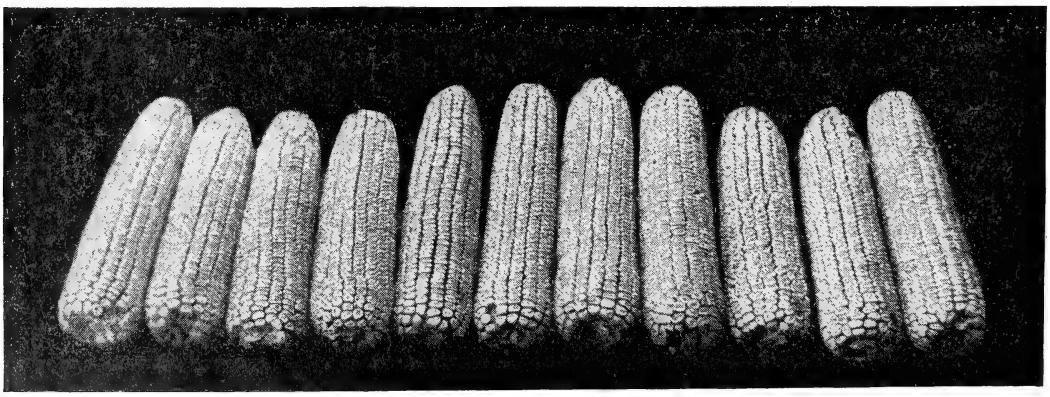
which we have to offer, provided you have one hundred and twenty days in which to mature your corn. We think this to be our best variety either for rich or poor soils, for grain or for ensilage, provided you want an ensilige variety that matures sound corn before time to fill the silo. Ears medium to long, cob medium sized, splendid depth of grain, fodder medium sized or a trifle large. This variety will mature satisfactorily in an ordinary season as far north as latitude 41 degrees. It does very well indeed in our own latitude or south of us. In 1908 forty-five acres of this corn averaged us 100.1 bushels per acre; last year one hundred acres averaged about eighty-five bushels per acre; this year about one hundred acres being husked as the catalogue is printed are averaging again about eighty-five bushels, and this in a season when frosts in spring and drought in summer seriously threatened to ruin the entire corn crop.

EXCELSIOR—This variety was secured from Oscar Collier, Easton, Maryland. It has been bred up along the same lines as our White Cap and for the same length of time. It is a pure white corn, remarkably uniform, of very fine quality, and a field of it will produce a large per cent. of seed ears, this being due to the very careful breeding which it has received. At present it is the latest variety which we are handling this being probably due to its not being acclimated, and we would not advise our customers to move it north of 40 degrees, unless they intend to use it for silage, for which it is splendidly adapted. The ears are of splendid quality, about as long as the White Cap, or a trifle less, excellent depth of grain, medium cob, fodder a trifle the largest of any of our varieties. This corn should have at least one hundred and thirty days in which to mature. It has shown a yield with us in our test plots as high as any corn we have ever tested, and in another year or so, after becoming thoroughly acclimated, we think it will be one of our most valuable kinds.



EXCELSIOR
We have had this corn yield 147 bushels per acre in test plots.

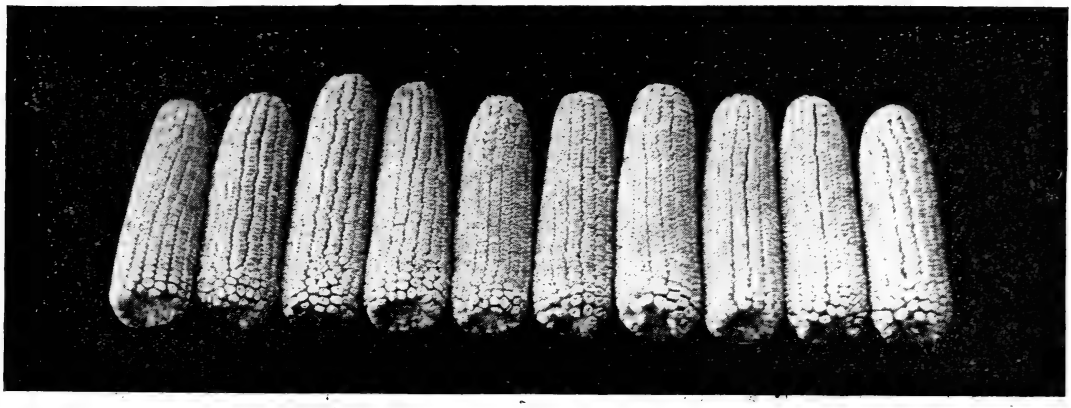
WING'S ONE HUNDRED AND TWENTY DAY WHITE CORN—Some of our customers object to Wing's Improved White Cap, because, as they very truly state, it is a cross-bred corn. To these we would recommend this One Hundred and Twenty Day White Corn. It is a pure white variety, and has many points to recommend it. It is perhaps a few days earlier in maturing than our White Cap. The ears are not quite so long. Perhaps they would average an inch shorter than the White Cap. The cob is of excellent size, neither too large nor too small. The depth of grain is excellent. The corn is rough, a trifle rougher than the White Cap. The butts and tips are well covered, and the corn is quite uniform. This corn has produced one hundred bushels per acre on moderate-sized acreage and we are sure that it will give a very good account of itself when given anything like good conditions. Fodder is medium to large, about the same size as Wing's Improved White Cap. Should not be moved north of 41 degrees.



WING'S ONE HUNDRED AND TWENTY DAY WHITE
It has repeatedly given us a yield of one hundred bushels per acre.

WING'S ONE HUNDRED DAY WHITE CORN—This variety we do not hesitate to recommend to those who live north of us. As it name indicates, it matures in about one hundred or one hundred and ten days, and we are frank to say that it is of excellent type, that it is the kind of corn that will make the most of its opportuities in the length of time it has in which to mature, and that in beauty it sometimes has the Improved White Cap beaten a little. It is remarkably uniform, and it is the type of corn from which show ears can easily be selected. The ears range from seven to nine inches in length. The proportion of grain to cob is excellent, the covering of butts and tips is very fine, and the weight of the ears in proportion to their size is unusually good. It is a pure white variety. We cannot see how it would be possible for this corn to yield as heavily as the Improved White Cap or as our other late varieties, but many of our customers cannot use as late a variety as either of those, and to them we recommend the One Hundred Day White Corn without hesitation. Fodder is medium-sized, a little smaller than the average fodder in this section.

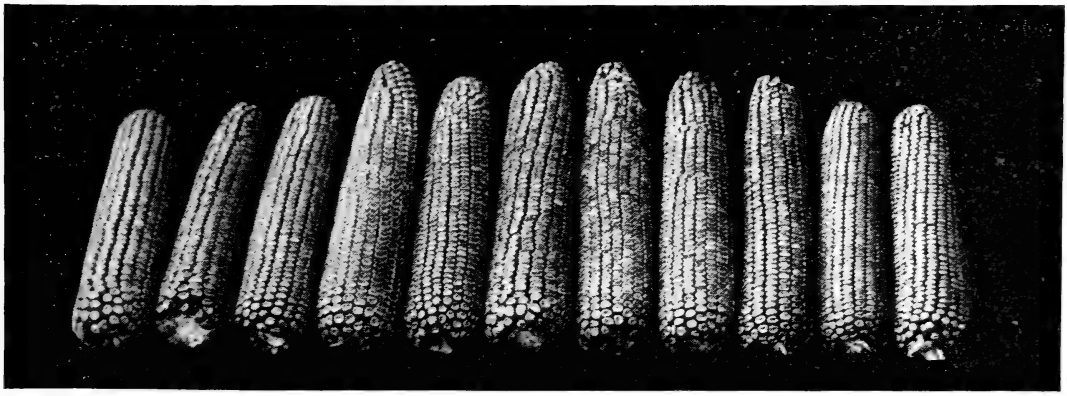
This variety may be safely grown as far north as latitude 42 or 42½ degrees.



100 DAY WHITE

We have repeatedly seen yields of one hundred bushels per acre on large acreages from this corn.

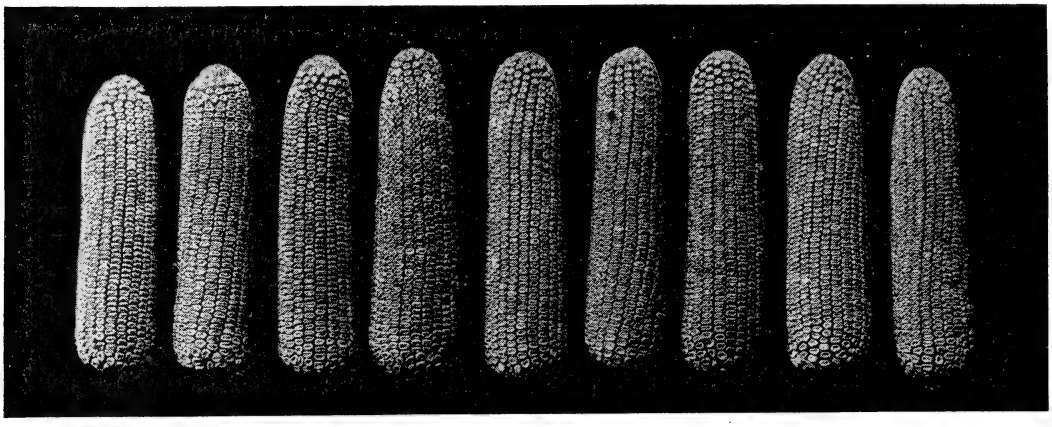
REID'S YELLOW DENT—We will say frankly that formerly we did not fancy the Reid's Yellow Dent,but this year we have a strain of it which looks very good to us indeed. The typical Reid's Yellow Dent was very large-foddered, late maturing, with a large cob, rather shallow grain, the grain usually small and square. The strain which we are offering this year has only medium sized fodder, matures just with our Improved White Cap, that is, in one hundred and twenty days, has a medium-sized cob and excellent depth of grain, being for the most part free from the old, square grain. We can thoroughly recommend this variety to our customers as a splendid, large-growing, heavy yielding corn, and one that will give a large proportion of seed ears. It will mature satisfactorily as far north as latitude 41 degrees.



REID'S YELLOW DENT

Our present strain has been in our hands too short a time to show the maxium yield it is capable of, but we are certain that it will yield right alongside of the best of our other varieties.

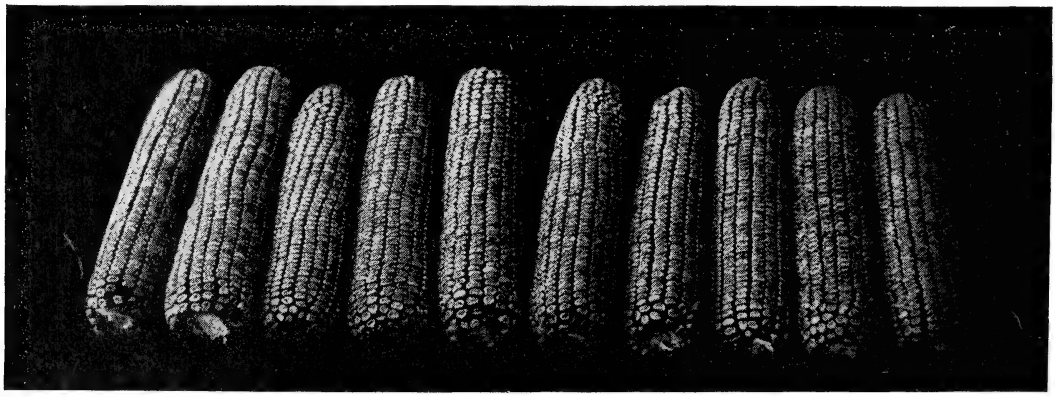
FUNK'S YELLOW DENT—This variety does not differ radically from the Reid's Yellow Dent which we are offering this year. We consider the chief difference to be in a little longer ear, that is, the ear is a trifle more slender than the Reid's, and grain is a trifle better shaped. In yield, time of maturity, and general characteristics there is little choice between these two varieties, and both of them are splendid, high-yielding sorts. The strain of Funk's Yellow Dent which we are handling came direct from Funk Bros., Bloomington, Ill., two years ago, and has been carefully selected and kept pure. This corn may be safely moved to latitude 41 degrees.



FUNK'S YELLOW DENT

We must repeat what we said about the Reid's Yellow Dent, that we have had our present strains too short a time to know what is the maxium yield of which it is capable, but feel sure it will compare favorably with our other kinds.

WING'S 120 DAY YELLOW—This is our most popular yellow corn, and we consider it one of our surest varieties. Placed side by side, our Improved White Cap, our Reid's Yellow Dent, our Funk's Yellow Dent, and 120 Day Yellow, will yield very closely together, the advantage being slightly in favor of the White Cap, especially on all kinds of soil. The 120 Day Yellow will yield as much either Reid's or Funk's Yellow Dent, is a little better adapted to our climate, a little more certain to make a heavy yield, and to mature before frost, than either the Reid's or Funk's Yellow Dent. This corn has excellent quality in every way. The type of grain is splendid, very deep and of excellent proportion. The proportion of corn to cob is just right. Fodder medium sized, probably a little smaller than either White Cap or Reid's Yellow Dent. It will certainly mature in 120 days, may be safely grown as far north as latitude 41½ degrees.



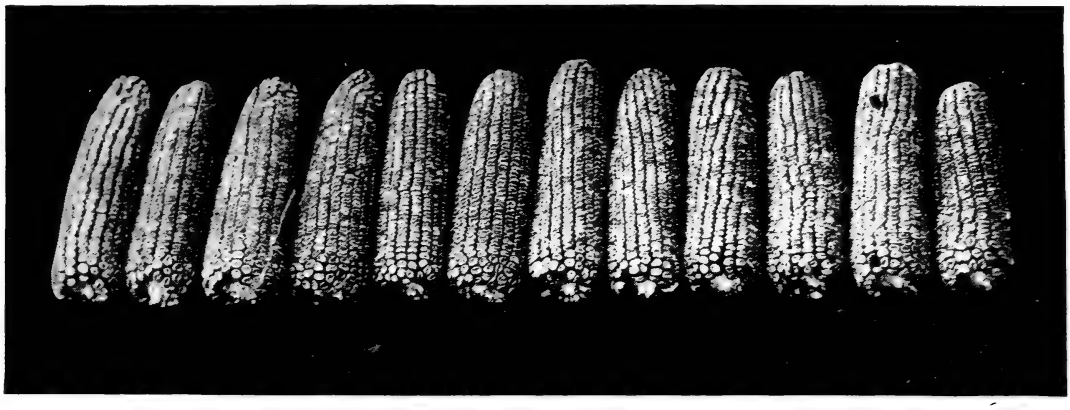
120 DAY YELLOW

One of our customers in New York state grew one hundred and twenty bushels per acre. Some of our own fields are yielding one hundred and twenty-five, but we feel that this yield can be surpassed in Ohio if the corn be given proper advantages.

CLARAGE CORN—This variety is known the country over and is one of our most valuable kinds. Some of its growers claim that it will mature in ninety days. Our observation has been that it needs about one hundred, but certainly it is a very early variety, one that could be safely moved north, and one that will make good, as it does just as well as possible for every day which it has during its growing and maturing time. It is unreasonable to expect one hundred day corn to produce as many bushels per acre as one hundred and twenty day corn, but this corn will mature as much corn in one hundred days as any variety of yellow corn which we

know of will mature in the same length of time. The quality is very good indeed, having great depth of grain and very good uniformity, excellent covering over butts and tips. The proportion of grain to cob is very good. We unhesitatingly recommend this variety for those who live north of us or for those who need a quick maturing variety for late seeding. Fodder medium to small, averaging considerably smaller than the average corn as grown in this country.

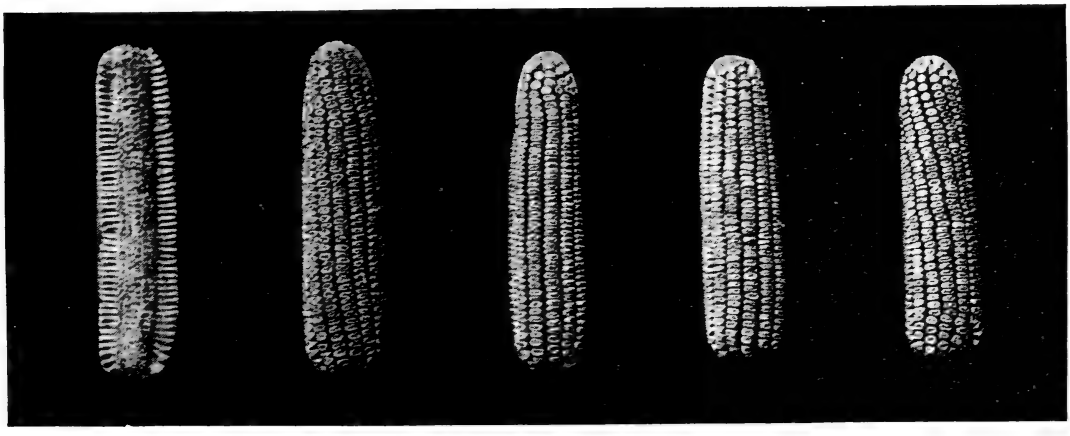
This corn may be moved as far north as 42 or 42½ degrees.



CLARAGE

A forty-acre field of this corn (from which come our this year's stocks of seed) yielded seventy-five bushels per acre.

WING'S 90 DAY YELLOW—This variety is as early as our Clarage, and is an extremely heavy yielder. It is remarkable for its depth of grain, our growers claiming for it only seven pounds cob per bushel. The grain is a trifle too rough to have the most pleasing appearance, but by this roughness it gains its great depth. As indicated by its name, in favorable seasons it will mature in ninety days; probably most years you should count upon one hundred to one hundred and ten days. Most so called ninety day varieties of corn require this long, anyway. We can thoroughly recommend this corn as a heavy yielder, considering time it requires to mature, and a variety that can safely be moved north of us; probably adapted to latitude 42 or 42½ degrees.



WING'S 90 DAY YELLOW

Our growers represent this corn as frequently yielding one hundred bushels per acre

SOY BEANS

Last year we ventured the assertion that Soy Beans were one of the coming crops. Today we are much more certain of it than we were then. Out of six hundred bushels of seed which we sold last year, only half a dozen partial failures were reported to us; all the rest of our customers being very enthusiastic over the crop. A year ago we wrote as follows concerning this plant:

If you will carefully study the statistics in our table of analysis, you will see why this crop deserves to take such prominence. It will be seen that the beans have a higher protein content than oil meal, that the hay from them has a higher protein content than Alfalfa. Note also the splendid amount of fat in the grain. Note that the green fodder contains a higher protein content than either alsike or medium red clover. Add to this the fact that with the new varieties it is easily possible to

secure two to three or occasionally as high as four or five tons of dry hay per acre; that from twenty to thirty bushels of seed per acre are frequently reported; that the plant is a legume and adds fertility to the soil fully as rapidly as the clovers or other legumes; that it will grow on soil too poor or acid for the easy success of Alfalfa; and you have a splendid combination, certainly qualities that are hard to excel with any of our cultivated crops.

A FIELD OF SOYS JUST BEFORE RIPENING

We estimate that this field would cut three tons dry hay or twenty-five bushels of grain per acre.

We know of no plant having a wider or more useful range of possibilities than the Soy Bean. When one stops to think of the great feeding value of the grain, of the entire plant's being very valuable for forage, of its being a legume and a heavy gatherer of nitrogen to the soil, and of the fact that it is by no means difficult to grow nor exacting as to the kind of soil it requires, he is bound to realize that it occupies a position unique among all our crops. Not only is the grain as nourishing as oil meal, but it is as greedily eaten as corn, and as easily digested as any grain we have ever fed. Moreover, there seems to be a tonic effect about the entire plant, and stock fed either the grain or the forage become full of life and energy as with no other grain that we have ever used. As a hay plant it certainly deserves to compare very favorably with anything that we are now growing, especially so when the best of the new varieties are used. These are not only large enough to produce a great quantity of feed, but the stems are fine enough so that there would be less waste than with most of the old varieties. Also the habit of the new varieties is much superior to that of most of the old ones, the plants standing erect and being easily cultivated and easily harvested.

In habit the Soy Bean is very far superior to the cow pea, the latter being recumbent and difficult to cultivate and to harvest. As a nitrogen-gatherer we are sure the Soy Bean has no superior, and where a crop to plow under is desired, nothing is better than the Soy Bean to add humus to the soil.

Its possibilities for silage have not been fully demonstrated, but it has been thoroughly tested in connection with corn, and in this way it makes as highly satisfactory a product as any that we know of, the beans greatly assisting to make a balanced ration. When all these facts are considered, and also that it will grow on either fertile or impoverished soils, either limestone or freestone, that while it is not quite a "lazy man's crop," it is not particularly difficult to handle, its high value will be fully realized.

I regard the soy bean as the most valuable plant in the United States. No farmer can afford to raise hogs or sheep without the soy bean. It is a sure crop. If the crop is plowed under it will add enough fertilizer to the soil to grow 150 bushels of corn to the acre. Any farmer who makes a test of soy beans will not farm without them. Alfalfa is not in it with the soy bean.—Wm. O'Keefe, Plymouth, Ind. (Mr. O'Keefe grew the Ito San.)

I fed them (Ito San Soys) on the ground. Turned the hogs right in on them. Must say they are a nice thing. They furnished a lot of feed besides the good they did the ground. Will do the same thing next year.—E. E. Bright, Oshtemo, Mich.

Will want more seed (Soy Beans) next year.—Fred W. Knoll, Norwalk, Ohio.

We think them (Soy Beans) next to clover for feeding to ewes raising hothouse lambs; they are great milk producrs.—R. M. McCartney, Freeport, O. (Mr. McCartney grew Medium Early Yellows).

Many times a meadow winter-kills, and we need a catch crop to supply additional hay. Millet has been largely used in the past for this purpose but Soy Beans mature so quickly that they may be sown at the same time that you would sow millet, and the hay secured from them is so very much more valuable than millet hay, that there is no comparison between them. One hundred pounds of Soy Bean hay contain twice as much protein as the same quantity of millet hay.

Today we wish to emphasize what we wrote last year, and to go one or two steps farther. With our experience, when growing the beans for grain, poor land is preferable to rich. The yield is heavier, and the habit is better on poor ground than on rich. With regard to the amount of hay produced, we may have stated the case a little too strongly last year; but one to one and a half tons per acre would seem to be only an average crop of dry hay, and more can certainly be produced on fertile soil. We are feeding this winter a small amount of Soy Bean silage. It is too soon to say what the result will be, although our correspondents state that it makes splendid feed. We do know that the amount of feed produced on an acre of fertile ground, when made into silage, is simply astonishing. A small plot which was harvested this way made ten tons per acre of green feed. Another item which we did not appreciate last year is the fact that the threshed straw and hulls make excellent feed. We were surprised ourselves at this, because the plants shed their leaves before they ripen, and the threshed straw looks like nothing but pods and stalks, but our sheep apparently relish this feed pound for pound as well as good clover hay, which we are feeding in conjunction with it. We cannot tell from only a few weeks feeding what valuation to place on this straw, but it certainly is valuable, and makes the crop worth still more than we supposed.

Soy Beans are not a lazy man's crop. Possibly, they require as much skill and patience as the potato crop. If our instructions are carried out, however, there is little need of even partial failure. Plow your land early in the spring, if possible, selecting soil that is not too foul with weeds. Prepare as for corn, giving frequent harrowings to kill the weeds as they appear. The ground should be a little warmer than for corn, and therefore, we wait until immediately after corn planting time before seeding the beans, say about May 20th. We advise planting in drills about thirty inches apart, and one plant every three inches in the drill, which, we think, makes an ideal stand; as every seed will not produce a plant, it is wise to sow the seed a little closer than this. Nothing is gained by having the rows too close together or planting too close in the row, as they crowd each other like weeds.

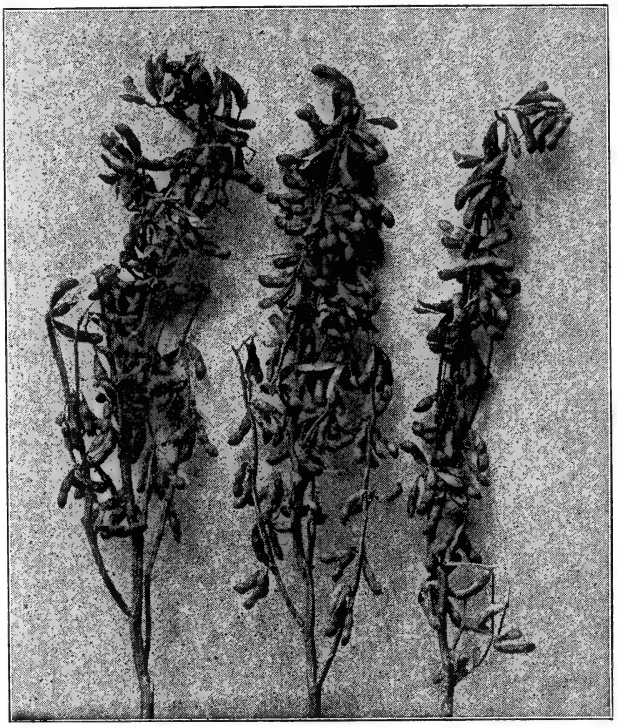
We have been using a Black Hawk corn planter with a special plate for sowing this seed. This year, however, we are trying a Superior grain drill, which will sow three rows at a time, and which theoretically should be a better machine for planting the crop than any make of corn planter.

We wish to emphasize the fact that Soy Beans must not be sown broadcast. They must be so planted that they may be cultivated. This is essential to successful growing. Also they must be inoculated. They may be inoculated with soil from an old soy bean field, or with the cultures which may be obtained from the Department of Agriculture at Washington.

Do not wait until too late to plant them, because the best varieties need very nearly as long a season in which to mature grain as corn requires. We think just about May 20th in this climate is an ideal time. If your soil is in nice condition, and the weather warm, they will come up quickly ahead of the weeds and before the ground has time to crust. If sown in cool weather, the ground is very likely to crust before they will come through. Some of the most successful growers run a weeder over the field almost immediately after planting. We believe this to be all right, provided caution is used not to use this machine after the plants have germinated, and when they are just ready to come through the ground. One year we ruined a field by using a weeder just as the plants were ready to come through, the machine breaking off many of the cotyledons. Just as soon as the plants appear above ground cultivation must begin, because it is important that the weeds be kept down while the plants are young. Cultivate as you would corn. We use a Buckeye pivot beam two-horse cultivator, which is by far the best machine for this purpose which we have ever seen. The plant needs about as many cultivations as corn does, but the cultivations must be given while the plants are young. It is all right, in fact it is wise, about the second cultivation to throw quite a little earth to the row in order to smother the weeds. After the second cultivation, practice absolutely level cultivation, trying to leave the ground as little ridged as possible, not only for the good of the growing plants, but in order to make harvesting easier. As soon as buds appear, cultivation absolutely must cease. We do not even allow weeds to be pulled after this time.

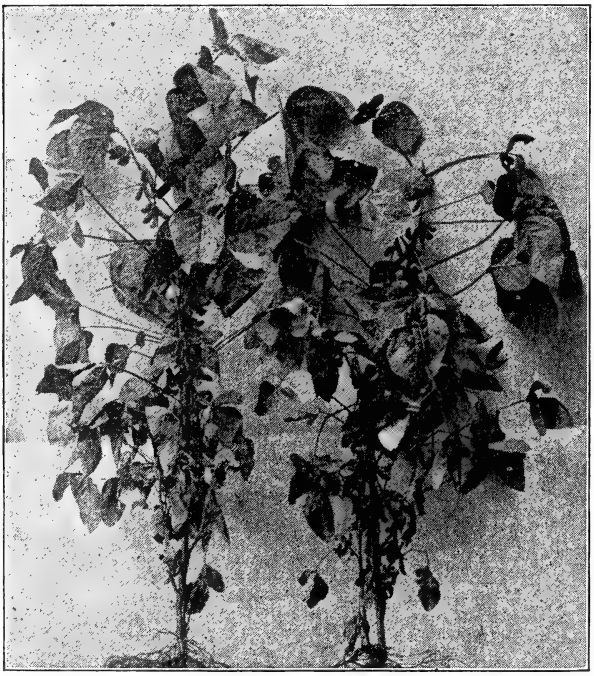
When the beans begin to ripen, nearly all the leaves will fall. No cast iron rule can be laid down for time to commence cutting, but the pods will usually be somewhat dry, and you will find here and there a pod snapped open. Probably a safe rule would be to start cutting the day that you find one or two pods beginning to snap. There will probably be some small spots in the field where moisture or fertility was different from other parts where the beans will be greener than the rest of the field. It is not necessary to leave these small spots stand; the beans, if properly handled, will mature all right after cutting. On sandy land, we believe a puller might be the most satisfactory machine for harvesting; on heavy clay soils which are filled with limestone pebbles, the pullers do not work so well. We think we prefer a self rake on our soils, although to get the best use of this machine, the field

should be fairly level, and any ridges along the rows will bother the machine a little. A mowing machine does all right in many ways, and is very nearly as good as the self rake. The advantage of the latter being that it lays the plants to one side, so that neither horses nor wheels run over the vines to tramp the beans out. Harvest only while the dew is on, early in the morning. During the middle of the day, when the vines are ripe enough for harvesting, any machine which we have used will shatter the beans. As soon as the beans are cut, we advise shocking them in fairly good-sized shocks, preferably doing this work when a moderate amount of dew is on the vines, as they are then tough, and there will be no loss from shattering. Leave then in the shock from three to six weeks, in order to give them time to perfectly cure out the beans before doing anything more with them. An ordinary shower will not injure them when shocked, but a very heavy rain would necessitate opening the shocks out to dry. One of the most successful growers leaves his in the shock from three to six weeks, then puts them in his barn, and after allowing them to go through a moderate sweat in the barn, he threshes during the winter at his convenience.



WING'S MIKADO

When threshed for grain alone, an ordinary thresning machine with the concaves removed will do the work fairly well. This machine, however, will split a great many beans, and when desired for seed, a regular bean huller must be used. This year we used a Buffalo-Pitts threshing machine handled by the Banting Machine Co., Toledo, Ohio, and found it a very satisfactory machine for the purpose. We are free to recommend it to our customers. We had to adjust the screens in a slightly different manner from the way in which the machine was sent out, but with this exception the machine was all right and did good work.



WING'S MONGOL
Just before ripening. Note erect growth, splendid amount of both grain and foliage.

In past years many farmers have become disgusted with Soy Beans on account of the old varieties being poorly adapted to conditions existing in the corn belt. Some of these varieties were entirely too early and dwarf in their habits others shattered so badly that it was almost impossible to harvest them. The United States Government has done some splendid work, testing each year two or three hundred new varieties, and the varieties today are so much better than the old ones that there is no comparison. Practically none of the new varieties are for sale as yet, but most of them will be in a year or so. Through the kindness of the Government we have been permitted to test some of the new varieties ourselves, and one or two of them we can offer in small amounts this year.

We are now breeding our Soy Beans by plant row test plots, the same as our seed corn.

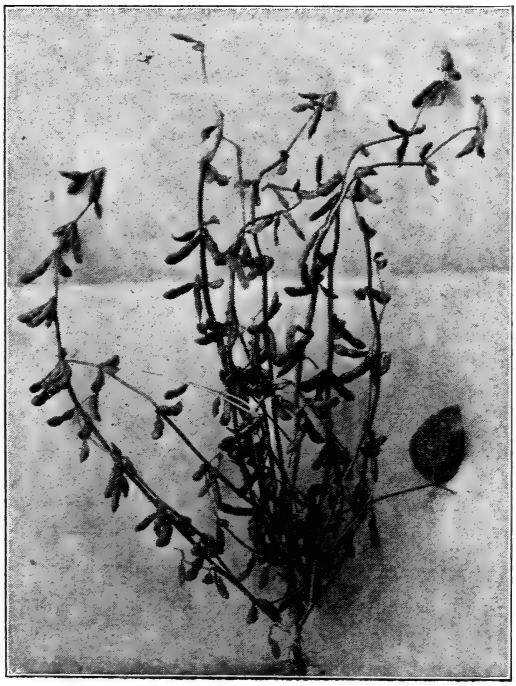
Wing's Mikado, Mongol and Sable varieties are, in our opinion, the finest and heaviest yielding varieties of Soy Beans on the American market today. They are the best we have been able to produce after twelve years' work. Stocks of these varieties are obtainable only directly from us. We have no agents offering these varieties, and no other seedsmen have them.

MIKADO—A variety secured by us this year for the first time, and one which we believe will rank among the first either for hay or grain. The habit is excellent, plants splendidly erect, leafy, branching, the stalks a trifle smaller than our Mongol, but considerably heavier than our Sable. This bean has a record in test plot of thirty-seven bushels per acre. It will mature in one hundred twenty to one hundred twenty-five days. Sow about twenty pounds to the acre.

MONGOL—A variety secured by us from the Government in 1908. This bean is certainly one of the most valuable that we have ever seen. Each year that we have grown it, the yield has been among the very best of any of the varieties we grew. The habit is splendid, plants sturdy and erect, about two and one-half to three feet tall, the beans of excellent size, pods as thickly set as the plants will hold. It does not shatter easily when harvested. The plants are a little too coarse for the best hay, but probably as good a variety for grain as any that we have, unless it be our Mikado, which has a wonderful record. This bean requires about 115 days to mature grain. Sow twenty pounds seed to the acre.

WING'S SABLE SOY BEAN
Plant shown at right contained 433 pods.

SABLE—A variety secured by us in 1908. This is nearly as heavy yielding a variety as we have ever grown, and is our best for hay or silage. The habit is practically perfect, plants erect, branching, pods forming high enough above the ground so that they can be harvested without loss of grain. The body of the plant is slender as are the branches, making this variety well adapted for hay. We believe there will be little if any difference between the yield of grain with this variety or with the Mongol. It requires 120 days in which to mature. Sow about fifteen pounds of seed to the acre.



ITO SAN Fully ripe and ready to harvest.

ITO SAN—An old standard variety, of the first and best sorts grown in the United States. Especially adapted to latitude 41½ degrees, or north of that. A heavy yielder of grain, should make twenty bushels per acre, not particularly suitable for hay on account of not making as much of it as the other varieties we sell, but quality of hay would be all right. Would probably make one to one and one-half tons per acre. Habit not as good as with our other varieties. It will mature in about one hundred and five or one hundred and ten days. Sow twenty pounds seed to the acre.

We sowed our medium early Yellow Soys broadcast in July. They made a luxuriant growth, and were just as full of pods as they could be.—Otto D. Baker, Conotton, O.

I counted over 100 pods on one bush of the Ito San Soy Beans. Each pod averaged three peas. So the yield was over 200 fold.—Julius Foster, Bayhead, New Jersey.

The vines are well filled and the beans of a good quality. I am well pleased with the turnout.—W. L. Varner, Monterville, W. Va. **(Mr. Varner planted Ito San).**

CLOVERS

When we were in school we were taught that there were axioms or self-evident truths; certainly one of these is that the clovers are the vitally essential crop for every section of the country. We are glad to see that nearly every farmer appreciates this fact. Some of us greatly prefer Alfalfa, but it is not likely that Alfalfa will ever take the place of either medium, mammoth or alsike clover. A farm rotation that does not include clovers or other legumes equally valuable, is certainly wrong. Every farmer knows about the clovers adding nitrogen to the soil, the cheapest source from which they can possibly obtain it, and only those who are very careless in their methods neglect to take advantage of the gain derived from this splendid plant. Some sections of the country are finding it increasingly difficult to grow clovers; these places are probably becoming deficient in lime, the application of which will usually restore the natural luxuriance of the clover.

IMPORTANCE OF GOOD SEED—Red clover seed is often badly mixed with injurious weeds, such as buckhorn, plantain, dodder, etc. Great care should be exercised in purchasing clover seed since life is too short to be spent in eradicating unnecessary weeds.

We handle an export grade of Red Clover, which we call our W. B. brand. It is of a quality so superior, that we are forced to ask a rather high price for it, but there are very few seedsmen handling anything as good as this is. Many of our customers have been surprised when they saw our seed, and they have stated to us that they have never seen any Clover Seed as good as ours.

MEDIUM RED CLOVER—Biennial, 2 to 4 feet—This is the common or medium clover, the one most universally grown throughout the country. On fertile soil, and especially where hay is desired it has only one superior, and that is Alfalfa.

MAMMOTH CLOVER—Biennial, 2 to 4 feet—For impoverished soils, or for pasturage, we think this variety excels the medium. On impoverished soils it does not grow too rank or coarse, and in a pasture it retains its greenness throughout the summer much better than the medium does, and also furnishes a larger amount of forage. It is also better adapted to fertilizing the soil than the medium, as it grows much ranker and coarser, making more to plow under. It is not nearly so valuable for hay when grown on fertile soil as the medium, because it is too large and coarse.

ALSIKE CLOVER—Biennial, 1 to 3 feet—This plant ranks nearly as valuable as the medium for ordinary soils, and in special conditions is much better. The plants are smaller, and ordinarily it produces a somewhat lighter crop than the medium, but as it is also much more closely eaten by stock, there is less waste. The quality of the hay is better. As the plant is a perennial while the medium is a biennial, it makes more of a permanent meadow or pasture plant. It succeeds on impoverished soil or acid soil better than the medium, and on wet soil it is invaluable. It will not of course, grow in water, but will stand more moisture than the other clovers. It is fibrous-rooted, and will not heave out in winter.

WHITE CLOVER—Perennial, 4 to 9 inches—This is the common little running clover found in most good pastures. Its chemical analysis shows it to be richer in protein than almost any other legume which we grow for forage. It is, of course, too small to grow for hay, but it is invaluable in all pastures, and no pasture mixture would be complete without it; in fact, we can thoroughly recommend discing old blue grass pastures and sowing a mixture largely composed of this clover to improve both quantity and quality of the pasture.

CRIMSON CLOVER—Annual, 1 to 3 feet—Throughout many sections of the country this plant has accomplished wonders, principally in building up poor soils. Its usefulness is mostly confined to its fertilizing value as the hay is not very well relished by stock, although if cut green it makes a fair quality of hay. In the Atlantic and Southern states, its usefulness can hardly be overestimated, as it has redeemed thousands of impoverished fields at an extremely moderate expense. It is usually sown in the fall, allowed to come into bloom, which it does quite early in the summer, then either cut for hay, or plowed under, and another crop grown the same year. It could be sown in the spring, when it would mature a crop before fall.

SWEET CLOVER—Biennial, Height 3 to 7 feet—This plant, which was formerly considered a weed, seems likely to become important for fertilizing purposes. Some claim that it is useful for feed, but there is a difference of opinion on this point. What is certainly known and agreed upon by all is that it will grow and flourish on decidedly poor soils, soils so poor that they will support hardly any other clover at all. Left on these soils for three or four years, the plants being biennials will be constantly dying, and their roots and tops going to form humus in the soil, and as it will continually reseed itself, it needs no attention after the first seeding. Such a field plowed up after three or four years growth in sweet clover, will very frequently grow alfalfa without any additional preparation, and other crops will flourish on it as if it were a new piece of ground. Also sweet clover has the same bacteria as alfalfa, and is in this way an excellent preparation for alfalfa. There are two or three troubles with this plant. It probably requires almost as much lime in the soil as alfalfa itself does. Occasionally it seems to be lacking in inoculation. It is weedy in its habits and if allowed to escape into fence corners or roadsides, it is a little difficult to get rid of. And, finally, the seed is one of the most difficult to buy that we have. Most of the seed produced in the United States is unhulled, and sometimes this unhulled seed is allowed to heat, destroying the germination. A very frequent source of trouble with the seed is the excessively large number of hard seed contained. We have germinated samples which we have gathered ourselves directly from the plants, seed that looked to be absolutely perfect and germinated it in a germinating apparatus that gives us good results with most seeds, but our test would show as low as five or ten per cent. germination in five days' time. Certainly this seed must have been all right, because nothing could have happened to the germ to kill it, and it was fine, perfect-looking seed. The

Government informs us, however, that the chemical constituents of the soil acting upon this seed will produce a higher germination than we are likely to obtain with the ordinary germinating apparatus such as we have in our office for testing seeds. From the South we have a report that sweet clover showing a germination of ten per cent. will give a good stand. This year we have purchased large stocks of unhulled American-grown Melilotus of the white variety, which makes the larger growth and is best for fertilizer. Our stocks come from two reliable farmers, who state that they absolutely know that their seed will grow all right. Most of our stocks come from one of these farmers, who says that he has sold seed for twenty years, and has never had a complaint on the germination. We bought this seed on the statements of these two farmers, and we offer it to our customers without guarantee, but in the belief that if this seed is given a reasonable opportunity in the soil, it will produce a proper stand. Sweet clover should be sown at the rate of twenty pounds acre, twenty-five even being not too much. Sow either on top of the ground in February, or with beardless barley as a nurse crop at oat-seeding time, or without a nurse crop in September. It may be sown in corn at the last cultivation. Prepare the seed bed as you would for any other clover.

BEST LEGUMES FOR FERTILIZING PURPOSES—Since we are very frequently asked what plant is best to sow for fertilizer, a word of explanation here might be in order. Crimson clover is hard to excel throughout the Atlantic or Southern states. The seed is ordinarily very low-priced, the plant succeeds on very poor ground, adds much nitrogen or humus to the soil if plowed under, and fits into any rotation admirably, because it may be grown without seriously interefring with any other crop.

Winter Vetches are splendid winter cover, more nutritious than alfalfa, good pasture. Cut one or two tons of hay per acre. Especially valuable in the south.

Sweet clover has the advantage of inoculating the soil for Alfalfa, of making a ranker growth than the crimson, of seeding itself, and a very poor field may be left sown to it for any required length of time, becoming more fertile each year.

Mammoth clover has the advantage of being pretty good feed in addition to being a good fertilizer.

Cow peas belong to this same class, and, especially throughout the Southern states, it is hard to excel them. They are probably not quite as good feed as mammoth clover.

Soja Beans may be used in the same way, the principal advantage of their use being that they are better adapted to northern conditions than cow peas. They are also much easier cultivated and harvested.

The disadvantages of these plants may be stated as follows: Crimson clover is only moderately good when cut for hay, it succeeds better in the South and in the Atlantic states than it does in the Corn Belt, where it frequently winter-kills. Sweet clover cannot be counted on much for feed excepting as far south as Alabama, and as before stated, it must not be allowed to escape from cultivation. The only fault to find with mammoth clover is that the seed is usually a little higher priced than that of the other plants of this class. There is no objection to cow peas nor soja beans.

Vetches have high priced seed, and, especially in northern states, are uncertain. we believe on account of lack of inoculation in northern soils. They are recumbent and need oats, barley, etc., to hold them up, if intended for hay.

THEORY OF MEADOW AND PASTURE MIXTURE—Mixtures are absolutely all right. Two grasses grown together will nearly always yield more than when they are grown separately. Three or more grasses will nearly always yield more than two grasses, or than when all are grown separatey. Furthermore, two or more grasses grown together exhaust the soil less rapidly than one grass grown alone. Upon these principles rests the entire theory of all mixtures. For example, timothy and medium red clover grown together will make a larger yield than either one grown singly; the addition of red top will still more increase the yield; the addition of alsike will still further increase it, and improve the quality as well.

TEMPORARY MEADOW AND PASTURE MIXTURES—Meadows intended to be plowed up in three or four years time will yield more and better feed when a mixture is used than when one grass is sown alone. The same theory applies to this that applies to all other mixtures.

If you care to avail yourself of our knowledge and experience in this matter, we will be glad to make special meadow mixtures for either moist or dry soils, for limestone or freestone soils, and to make mixtures containing either a preponderance of clover or a preponderance of timothy with some clover. We will make the same rule about this that we make about our other special work, and will decline to make special mixtures during our rush season (March.)

PERMANENT MEADOW AND PASTURE MIXTURES—We make a specialty of meadow and pasture mixtures. This our practical knowledge of the subject enables us to do.

We have carefully studied all the grasses, and the clovers especially, for many years. We have studied them not only at home, but in all sections of the country. We feel entirely competent to make mixtures for any purpose, and have furnished them for a number of large estates in different parts of the United States.

We have some demand for permanent meadow mixtures, but have not handled these heretofore, because we thought the principle bad; that meadows should not be left in permanently; but where it is desired to cut for hay for one or two years and then turn into a pasture, as many farmers wish, the idea is all right, and this year we are preparing mixtures for this purpose. Our dry and moist permanent meadow mixtures are designed for this purpose. We do not sell or recommend any mixture which is expected to be cut for hay for more than two or three years at the outside. Alfalfa can be cut for more years than this, but no mixture with which we are familiar can be recommended for this purpose.

Upon request, and upon receiving careful description of your soil, we can vary these mixtures to meet special requirements, and are glad to do so without extra cost. However, if you want special mixtures, by all means give us your order before the rush season, because we have all that we can possibly do with our regular work at that time, and cannot possibly get out special mixtures.

DRY AND MOIST PASTURE MIXTURES—The expense of having this mixture amounts to little more than where you have only two or three kinds of grasses. For ourselves, we would never be contented to seed a pasture without having a large amount of clover added to the mixture. The several different varieties of clover are well adapted to this use, and not only do the stock thrive on them, but they enrich the soil at the same time and actually stimulate the other grasses. We prepare a dry pasture mixture and a moist pasture mixture. These mixtures both contain the proper amount of clover and also a large variety of the finest pasture grasses. We would recommend, however, that our customers either re-mix these mixtures upon arrival, or that they order the clover separate and mix it after the seed has been received. This is because in shipping the probabilities are that the clover will settle largely to the bottom of the sacks, and not be properly mixed upon arrival. Upon request we will make this mixture in any proportions which our customers desire and from any varieties of grasses found in our catalogue. If you desire any special mixture or any special proportions, write us before you are ready to order and we will estimate the cost. Where it is left to our judgment, we will use in the Dry Pasture Mixture, the following varieties of seed: Timothy, Medium Red Clover, Mammoth Clover, White Clover, Orchard Grass, Tall Meadow Oats, Tall Fescue, Creeping Fescue, Sheep Fescue, Bromus Inermis, Kentucky Blue Grass, Canada Blue Grass and **Alfalfa.**

Moist Pasture Mixture: Timothy, White Clover, Alsike, Medium Red Clover, Mammoth Clover, Bromus Inermis, Kentucky Blue Grass, English Rye, Meadow Fescue, Sheep Fescue, Tall Fescue, Red Top, Orchard Grass, Tall Meadow Oats and Reed Canary Grass.

We sold $10,000.00 worth of pasture and meadow mixtures last year, and gave universal satisfaction.

SPECIAL ADVICE—Our Mr. Joseph E. Wing has spent the greater part of his life in traveling, studying soils and plants under almost all conditions, not only in every state in the Union, but in foreign countries as well. He is familiar with the work that has been done at nearly all the Experiment Stations as well as that which has been done at Washington, and he certainly has had every opportunity to learn the whole agriculture scheme. Most of the year his time is fully occupied, but sometimes it is possible for him to make special trips to study conditions, give advice as to soil requirements, or suggest plantings of meadows and pastures. When his time permits, he is willing to do this for a reasonable compensation as he has many requests for his time such visits can seldom be arranged without previous correspondence and due notice.

AWNLESS BROME GRASS OR BROMUS INERMIS—Perennial, height, 3 to 5 feet—This grass is certainly one of the most valuable pasture or meadow grasses ever introduced into the United States. It is also fully as good for hay as timothy, one of the very earliest grasses to start in the spring, greedily eaten by all kinds of live stock when pasturing, requiring no attention after once seeded because its tendency is to thicken up, standing drought remarkably well, making luxuriant growth on all fertile soils, and a fair growth even on poor soils: these qualities place this grass in a position by itself. In fertile meadows it grows five feet tall, and makes an abundance of hay of equal value to timothy. For mucky ground we prefer it to any other kind of hay which we have tried. When pastured hard it disappears, not having as great power of resistance as orchard grass or Kentucky blue grass. It is indeed unfortunate that so valuable a grass should have been practically ruined, but such is the case with this one. More than nine-tenths of the brome grass seed offered for sale today contains one of the most dangerous weeds known in America, the quack grass. Last year we obtained a small lot of seed which was free from this quack grass; so far this year we have found none whatever that would do to offer and if we do not find seed which Government analysis indicates free from quack grass, we certainly will not sell any of the brome grass seed at all. We wish to warn our customers in regard to this danger. No matter where you buy brome grass seed, have it analyzed at your Experiment Station or at Washington, and be sure that you do not get quack grass. Sow on well prepared soil about April 1st, covering the seed lightly. Use fifteen to twenty-five pounds seed to the acre.

BROMUS INERMIS

KENTUCKY BLUE GRASS—Perennial, Height, 10 to 15 inches—This is also too well known to require description. We recommend sowing (if alone) about three bushels per acre.

This year we are selling both the Fancy Re-Cleaned Kentucky Blue Grass and the Blue Grass Strippings. It is a recognized scientific fact that unhulled grass seeds possess greater vitality than hulled ones. A friend who has had a great deal of experience with these grass strippings, advises us that he never has any trouble with the germination, and that he can always secure a more uniform stand than from hulled and cleaned seed. You will understand that these strippings include the stalk just as the plant is mown, but the most of the weight is actually with the seed. They require sowing by hand, and sometimes the bunches must be picked apart to prevent too much falling in one place. After scating the seed, a weeder or light harrow should be run over them to cover lightly.

KENTUCKY BLUE GRASS

ORCHARD GRASS—Perennial, Height 12 to 30 inches—This grass is invaluable for pasture, but not very well suited for meadows. It will stand more abuse, hard tramping, poor soils and drought than any other grass which we handle. It starts early in the spring, and furnishes green pasture among the earliest of our grasses. In the middle of the summer a pasture of it should ordinarily be mown, as it tends to become woody, and after mowing it will start up fresh and green, and make abundant fresh pasture. It also thrives excellently in shady places. It is nutritious feed, and properly handled will be readily eaten, although after it becomes woody, stock will usually prefer other grasses to it. Sow in the spring twenty to twenty-five pounds per acre in well prepared soil, covering lightly.

ORCHARD GRASS

TALL MEADOW OAT GRASS—Perenial. Height, 2 to 4 feet—This grass is recommended for permanent pastures on account of its starting so early in the spring, as well as furnishing abundance of late feed. It prefers deep, sandy soils, or soil on which clover thrives. Sow 40 to 50 pounds per acre.

ENGLISH OR PERENNIAL RYE GRASS—Perennial. Height, 15 to 24 inches—A valuable grass for permanent pastures, or for lawn mixtures. It produces an abundance of fine foliage, forms a compact sward, and remains bright and green throughout the season. If cut while in bloom it is a nutritious variety for hay, although it becomes woody later. Thrives best in soil that is not too dry. Sow (if alone) 60 to 70 pounds per acre.

RED TOP—Perennial. Height, 1 to 2 feet—So well known as to hardly need description. It is often sown with timothy and red clover to make a heavier yield of hay. It prefers moist, rich soil on which it should reach a height of from two to two and one-half feet. It is also recommended in parts of the country as valuable grass for permanent pastures. Sow (if alone) about 40 pounds per acre.

TALL MEADOW FESCUE—Perennial. Height, 3 to 4 feet—A rather coarse grass but very nutritious and productive, especially adapted to clay soils and shady woods. It is greatly relished by all stock when green, and is highly recommended for all permanent pasture mixtures. It also makes good hay. Sow (if alone) about 35 pounds per acre.

RED OR CREEPING FESCUE—Perennial. Height, 2 to 2½ feet—This grass is recommended on account of its ability to withstand drought. It roots deeply in the soil, and remains fresh and green when other grasses are apparently dried up. It yields a good bulk of herbage or fair quality. It is most nutritious at time of flowering. Sow (if alone) about 35 pounds per acre.

MEADOW FESCUE—Perennial.. Height, 18 to 24 inches—One of the most highly recommended of our natural grasses. It is very nutritous and greedily eaten by all kinds of stock and very fattening. It makes good hay, succeeds well on many kinds of soil, although best on moist land. One of the earliest grasses to start in the spring, and one of the latest in fall. Sow (if alone) about 55 pounds per acre.

CANADA BLUE GRASS—Perennial. Height, 6 to 12 inches—Succeeds on soil too poor for Kentucky blue grass. It is well relished by stock, and especially recommended for cows. It should form a portion of the mixed grasses for permanent pastures in most parts of our country. Sow (if alone) about 40 pounds per acre.

SHEEP'S FESCUE—Perennial. Height, 6 to 20 inches—This grass is especially recommended for good upland or dry pastures, and for sheep grazing, being very much relished by them. It is slightly deficient in quantity of forage produced but it is so nutritious as to counterbalance this deficiency. It is also recommended for lawn mixtures. Sow (if alone) about 30 pounds per acre.

TIMOTHY—So well known as to need neither description nor recommendation. We handle only the very best seed, an export grade sold by few other firms.

PRICE LIST OF BOOKS

We are agents for books and circulars on Alfalfa.

ALFALFA IN AMERICA—By Joseph E. Wing. 480 pages, cloth. Price $2.00, postpaid. The most comprehensive, practical and valuable work on Alfalfa ever written. The writer has had much experience with the plant, growing it on his own farm and observing it in every state in which it can be grown. The book treats of the history, varieties and habits of Alfalfa, describes the conditions required by the plant and how to produce them where they do not exist naturally, tells how to prepare the soil, how to sow, care for and harvest the plant, the proper tools to use, how to erect suitable buildings for storing the hay. It describes the enemies of Alfalfa and how to combat them and discusses the soil in its relation to Alfalfa, its different constituents, and what fertilizers to use.

FEEDS AND FEEDING—By W. A. Henry. 613 pages, cloth. New edition just out. Price $2.25 postpaid. This book is a cyclopedia of animal nutrition and rational feeding of farm animals. It shows how plants grow and elaborate food for animals, the functions of different nutrients, the production of flesh, fat and energy, how to calculate rations for farm animals. It gives the food values of the different feeding stuffs, the grains and grasses, mill and factory by-products. It sets forth the results of the tests of American and European Experiment Stations in feeding farm animals. In this connection a great many tables are given, showing the amount of food consumed in one day by the animals in the test, the product of the day's food in work, flesh, energy, etc. It is cross-indexed in such a manner that any fact stated in the text may be readily found. This book should be in the library of every up to date farmer.

ALFALFA—By F. D. Coburn. 160 pages, cloth. Price, postpaid, 50c. Table of contents includes chapters devoted to history, description, botanical position, varieties, length of life, habits of growth, penetrating of alfalfa roots, climate and soil, food for alfalfa, seed bed and preparation, time of seeding, quantity and quality of seed, method of seeding, nurse crop, treatment of young alfalfa, alfalfa for soiling, harvesting, comparison of yields, scientific feeding, alfalfa vs. corn, alfalfa for dairy cows, for swine, for horses, for sheep, as a honey plant, making a balanced ration, alfalfa in rotation, Turkestan alfalfa, alfalfa culture and insect life, disking and harrowing, enemies and friends of alfalfa, alfalfa in different states.

ALFALFA—By F. D. Coburn. Over 400 pages. Fifty-eight photographs. Price, $2.00, postpaid. This book covers the same ground as the smaller one by the same author. It is, however, amplified, going into detail, and is very valuable work on this most important subject.

We would also recommend to every one who is interested in growing alfalfa to write to the Ohio Agricultural Station at Wooster, Ohio, for their Bulletin No. 181, on alfalfa.

The Kansas Experment Station at Manhattan, Kansas, has a very valuable bulletin on Alfalfa. Wrte them for Bulletin 155.

MILLETS

JAPANESE MILLET—A tall growing and enormous yielding variety. It is sometimes 6 to 8 feet high. Does not lodge and sometimes yields from 10 to 12 tons of green fodder per acre. When properly cured it makes excellent hay. It is

recommended that this variety be sown on good rich soil, and only in the northern states, as it does not thrive south of the Ohio river. If sown early in May and cut when in bloom it will produce a fair second cutting. May be sown from the middle of May to the first of July. Broadcast, 15 pounds per acre, but it is better to sow in drills, 12 to 14 inches apart, using 10 to 12 pounds per acre, and hoeing between the rows to keep down the weeds until the plant is a foot high or over, after which time it will smother all weeds out itself.

HUNGARIAN MILLET—It is the quickest maturing of any variety of millet. May be sown any time during the summer up to the middle of August, thus being very valuable to substitute where another crop has failed. Sow about 48 pounds per acre.

GERMAN OR GOLDEN MILLET—Tennessee Grown—This stock is much preferred to the same seed Western-grown. Will grow in any climate or soil, and make a large yield of nutritious feed. Should be sown at the rate of 50 pounds or over per acre, any time between May 1st and June 15th; cover lightly. Cut while in bloom before the seed hardens.

PEARL MILLET—This is the largest variety of Millet grown. It looks very much like Sorghum, and we would take it to be of equal value. Under only moderate conditions it makes a large amount of forage per acre and as only a small quantity of seed is necessary to sow an acre, it does not make an expensive forage. We grew an experiment patch last year, and we are pleased with the results. It may be sown broadcast, or drilled in and cultivated. The plants will grow from seven to twelve feet tall.

To be of any value for feed, it must be cut when quite green, preferably before coming into bloom. When handled in this way, it sometimes produces two or more crops in one year.

VETCHES

These plants should probably be grown more largely than they are. They serve as a valuable cover crop, afford abundant early spring pasture and may even be cut some for hay. When plowed under they greatly enrich the ground, and are largely used for this purpose. They are frequently sown in connection with oats or barley, rye or Mammoth Red Clover, which serve as a support for the plants. The winter vetch will stay green all winter, and is one of the earliest crops to start in the spring.

They will not do much good grown in the Northern States until they are inoculated. Repeated tests of our own have absolutely demonstrated this fact.

WINTER VETCH—It succeeds on nearly any soil, and in this state should not winter-kill. Sown in August it should cover the ground before winter. Sow 40 to 50 pounds per acre.

SPRING VETCH—Usually sown with oats or barley. Sow about a bushel of vetch and like amount of grain per acre. Will make a large amount of the finest feed early in the summer.

TRUE DWARF ESSEX RAPE

This is a plant which is coming into such prominence that description or recommendation is really unnecessary. It is of the cabbage family, and in feeding the same results may be expected as would be from feeding cabbage, but at a fraction of the cost of growing. Nearly all shepherds who exhibit at fairs expect to make a large part of their gains from this plant. It produces an enormous amount of forage per acre, which may be fed with absolute safety to sheep, hogs or cattle. At the Michigan experiment Station 128 lambs pastured on 15 acres of rape showed a total gain of 2,890 pounds during 8 weeks, which is 3 pounds per lamb per week. Our seed is the True Dwarf Essex, and not the worthless annual. Sow 4 pounds per acre broadcast, or 2 to 3 pounds if in drills.

WING'S SELECTED GRAINS

SEED OATS.

We give below the five year average yield of nineteen varieties of oats as tested by the Ohio Experiment Station. Note that the three highest yields are those of the Siberian, Sixty Day and Improved American. This year we are fortunate enough to have moderate stocks of all three of these oats together with the Big Four, which has been pleasing our customers better than the Green Mountain, Joanette or Illinois German. As this catalogue is printed, our stocks of Sixty Day and Siberian are small. Improved American, which has proven to be a splendid variety, well adapted

to the entire state as well as to adjoining states, we can furnish in any desired amount. Each year we have sent out return postals asking customers their yield of the varieties of oats we have been selling. The average of their replies shows a gain of at least five bushels per acre in yield over other varieties grown by their neighbors. As our seed, if purchased in ten-bushel lots, will cost only a trifle more than ordinary elevator seed, seldom more than $1.00 per acre more, and as the aver-yield of five bushels extra per acre would be worth from $1.50 to $2.50 per bushel, the advantages in using pure bred oats of varieties that are absolutely known to be the highest yielding sorts for the state are very evident. Each year we sell thousands of bushels of seed oats, and we think we are safe in saying that five out of six of our customers who use these strains have made money by doing so.

OHIO AGRICULTURAL EXPERIMENT STATION. CIRCULAR NO. 88

Experiments With Oats

NAME OF VARIETY	5 Year Average Yield	Wt. per bu. lbs.	Straw per bu. of grain, lbs.	Length of season days	Stiffness of straw
Siberian	70.46	27.90	38.5	105	82
Sixty Day	69.36	26.30	34.5	95	85
Improved American	68.99	26.55	44.0	106	90
Illinois German	68.97	27.90	42.7	106	85
Joanette	68.94	28.75	44.1	106	89
Green Mountain	68.70	26.35	43.6	106	87
Big Four	68.34	29.15	38.6	105	87
Silver Mine	67.68	29.85	39.9	104	85
Czar of Russia	66.75	28.95	42.5	106	85
Morgan Feller	66.57	27.90	43.6	106	88
American Banner	66.55	27.05	43.9	105	90
Wilson's Prolific	66.20	27.50	45.7	104	88
Lincoln	65.21	28.80	46.5	105	87
Twentieth Century	64.03	27.80	40.1	105	82
Swedish Select	63.89	26.00	42.8	105	82
Golden Fleece	63.83	28.10	40.5	106	83
Monarch	62.99	29.15	43.2	101	82
Seizure	61.63	24.25	52.8	109	92
Long's White Tartar	61.34	29.20	45.7	104	92
Alaska	60.44	29.20	46.7	101	85
Watson	60.01	29.45	45.5	104	92
Wideawake	59.46	28.55	58.5	105	78
Welcome	59.43	27.35	50.9	104	87
Clydesdale	58.86	26.90	52.3	104	89
Early Champion	58.66	28.65	42.7	100	79
Yearly Average	64.69	27.82	44.4		

The Relation of Rate of Seeding to the Yield of Grain. .Average of Four Varieties

4 pecks	5 pecks	6 pecks	7 pecks	8 pecks	9 pecks	10 pecks	11 pecks
43.60	46.77	47.22	48.50	49.83	51.17	50.85	51.86

BARLEY

CHAMPION BEARDLESS—We are pioneers in growing beardless barley in Ohio. Somewhere we read that it was a valuable nurse crop for meadows, and also that it was invaluable feed for farm animals. We began growing it about ten years ago, and were so well pleased with it from the beginning that we have used it for a nurse crop on our farm to the exclusion of any other grain ever since our first experiment. It has short, very stiff straw and little foliage, and ripens only a little later than wheat, coming off the ground before the young meadow has begun to suffer at all. If sown as recommended it forms so little shade as to injure young meadows none whatever, and as it does not stool as much as oats and very rarely lodges, it practically never smothers the young meadow under it. If cut when in milk it makes a large amount of very valuable hay greedily eaten by all kinds of stock. If cut for grain the straw may be fed with safety owing to its being beardless, and the grain is very rich, good feed. We had splendid results from it when fed to sheep. If fed to hogs it must be either soaked or ground, and should be mixed with oil meal, tankage or other feed to form a balanced ration. Sheep like it so well that it must be fed with caution until they are accustomed to it, but after this time is reached it may be fed liberally, and will give as good rsults as any grain with which w are familiar. Our Champion variety is the heaviest yielding variety known, and at the same time forms a very excellent nurse crop. It should be sown at the rate of about three to five pecks per acre for nurse crop, and for grain about two bushels per acre. Sow at oat seeding time.

FIELD OF CHAMPION BEARDLESS BARLEY ON WOODLAND FARM

COMPARISON BETWEEN BEARDED AND BEARDLESS BARLEY—Beardless barley is chiefly valuable as a nurse crop; for grain it is uncertain. It usually yields from twelve to thirty bushels per acre, sometimes forty to fifty bushels. Bearded barley should yield more uniformly and at a rate of from thirty to fifty bushels per acre. South of the Ohio river, bearded barley may be sown in the fall; but north of this, we can recommend nothing but spring sowing.

ODERBRUCKER BARLEY—This variety has been making a sensation in the Northwest, sometimes outyielding all other varieties many bushels per acre. Our stocks come from reliable sources in the Northwest, and we believe, will please all who try them.

RYE—A valuable crop for soiling, green fodder, straw or grain. It is largely used by farmers to seed in the fall, and pasture early in the spring. Our stock is Northern-grown, and will unquestionably give good results wherever sown.

We are handling both black and white rye. White rye usually yields more grain to the acre than black rye.

BUCKWHEAT—Our stocks are the best which we can obtain on market. We handle on a small commission, and our prices will be found to be on the market at all times.

SORGHUM—Grown both for syrup and for forage. Three to five pounds per acre is recommended for syrup. When fodder is desired, ten to fifteen pounds is the right amount of seed. When desired for hay, as high as one hundred pounds per acre may be sown broadcast; it will then grow quite fine.

SEED WHEAT

We give below results of the Ohio Experiment Station's long time test with twenty varieties of seed wheat. For some years we have been especially recommending the Gypsy, and this test certainly should be convincing proof of the splendid yielding qualities of this variety. Our stocks of Gypsy are descended from wheat secured from the Experiment Station itself.

Last year we sold large amounts of Gypsy wheat, and the reports received from our customers are so enthusiastic over this breed that we feel safe in recommending it to our customers as the very best variety grown in this state, enough better than the others so that in future we expect to handle this one variety alone. Gypsy wheat goes through the winter almost like rye, seeming to fairly rejoice in the cold, coming out in the spring in the very best heart possible. It has a large amount of straw, but of such splendid quality, so little given to lodging that we can cheerfully recommend it for fertile soils, on which almost any other variety of wheat would lodge. Our own neighborhood contains as fertile soil as is in the state, and we grow this wheat with entire success on the best land which we have. The field from which we obtained our stocks in 1910 produced at the rate of twenty-seven bushels per acre of Gypsy wheat, while another variety which is usually thought well of in this section, the Goenz wheat, grown alongside of it under identical conditions, made less than twenty. Reports from our customers everywhere that we have sold this wheat, have indicated the best of satisfaction with it.

RESULTS OF EXPERIMENT WITH WHEAT AT WOOSTER, OHIO. ELEVEN YEAR AVERAGE YIELD OF 20 VARIETIES

	Smooth or Bearded	COLORS		Bushels per Acre
		Grain	Chaff	
Gypsy	Bearded	Red	White	30.49
Poole	Smooth	Red	Red	29.85
Nigger	Bearded	Red	White	29.61
Perfection	Smooth	Red	Red	29.60
Dawson's Golden Chaff	Smooth	White	Red	29.56
Valley	Bearded	Red	White	29.45
Early Ripe	Smooth	Red	Red	29.02
Mealy	Smooth	Red	White	28.85
Harvest King	Bearded	Red	Red	28.77
Deitz	Smooth	Red	White	28.18
Fulcaster	Bearded	Red	White	28.08
Nixon	Smooth	Red	White	27.74
Lehigh	Bearded	Red	Red	27.44
Mediterranean	Bearded	Red	Red	27.43
Fultz	Smooth	Red	White	27.18
Hickman	Smooth	Red	White	27.12
Rudy	Bearded	Red	White	26.46
American Bronze	Smooth	Red	White	25.70
Velvet Chaff	Bearded	Red	Red	25.62
Turkish Red	Bearded	Red	White	23.09

THICK AND THIN SEEDING TEST WITH SEVEN DIFFERENT VARIETIES OF WHEAT. AVERAGE FOR 15 YEARS

	Bushels per Acre
3 pecks per acre	19.61
4 pecks per acre	20.93
5 pecks per acre	22.07
6 pecks per acre	23.26
7 pecks per acre	23.60
8 pecks per acre	24.27
9 pecks per acre	24.89
10 pecks per acre	24.97

CANADA FIELD PEAS

CANADA FIELD PEAS—This plant should rightfully assume greater importance than it has at present. Many of our best farmers know and understand this, but very many do not. It is used both as green feed and as fertilizer; and in both places it deserves to occupy a very prominent position. As green feed sown with oats or barley early in the spring, it fills a place which no other plant which we have can occupy. The amount of feed produced on an acre is very large. It comes before any other good nutritious feed suitable for hay or soiling. It is greedily eaten by practically all kinds of stock, and is as nourishing as can be desired. As a fertilizer, either when plowed under or pastured off, it will rank very high. Some of our very best farmers sow each year a field which they wish to enrich to Canada peas and ots, hogging off the crop or depasturing with cattle or sheep, and they say that they can tell the line right to the foot where these peas grew, when they plow the field up and put in another crop. We would earnestly urge our customers to use these peas more liberally than many of them have been doing in the past, knowing that they will be very well pleased with the result.

COW PEAS—These have a dual purpose, and wherever they are needed they are indispensable to the successful farming of the country. They will grow on soil so poor or impoverished that it is nearly impossible to grow any other farm crop. If one or two crops of them are grown and turned under for fertilizer, this same soil will then produce fair crops of every sort. In the South they are very extensively grown also for hay, being called the "clover" of the South. They are le-

gumes, and gather nitrogen from the air to add to the soil. We strongly recommend growing a crop of these preparatory to attempting alfalfa, even on moderately fertile land. Sow in May or June, or after corn planting, from one-half to one bushel per acre.

FINE GROUND TENNESSEE PHOSPHATE

Your land will grow bigger and better crops by a small investment and the study of coil fertility. It needs fine ground Tennessee Phosphate for the following reasons:

(1) Ground phosphate supplies phosphorus to your crops without in any way injuring the soil.

(2) Ground phosphate produces greater increased yields on the average than any manufactured fertilizer.

(3) Ground phosphate supplies the soil with phosphorus, which is the only plant food not usually present in the soil or which may not be easily supplied by natural methods.

The three important and necessary elements for soil fertility and large crops are Potassium, Nitrogen and Phosphorus.

The supply of potassium or potash is sufficient in most clay soils to last for many years. As a rule, it is only muck soils that particularly need additions of this element. To make the potash more available, humus should be added to the soil by plowing under clover, manure, etc.

Humus is the decaying organic matter of the soil formed from plant roots, leaves, crop residues, or from applications of manure. Humus is composed largely of **nitrogen,** one of the three necessary elements for soil fertility. By plowing under the manure, clover, pea-hay, or any organic matter (all organic matter is largely composed of **nitrogen)** the **humus,** and therefore, the **nitrogen** in your soil is maintained and increased.

Field of Clover where 1,000 pounds per acre of OUR PHOSPHATE ROCK was used last Autumn. FIRST CUTTING, 2½ TONS PER ACRE.

Two-acre strip in same field where Phosphate Rock was NOT used. FIRST CUTTING, 1 TON PER ACRE.

Pictures Taken June 15, 1910

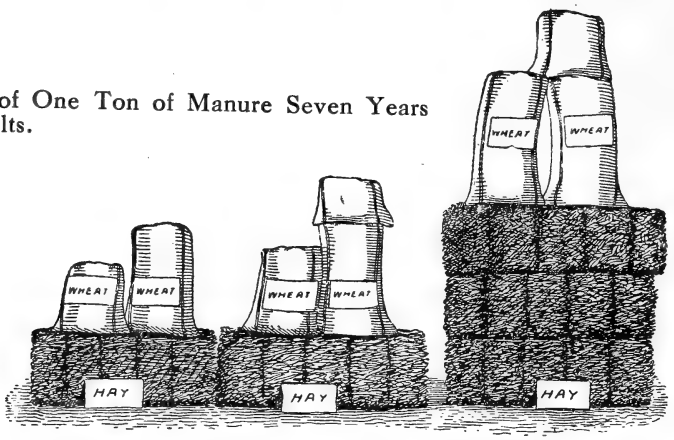
The third element, **phosphorus,** is necessary for the growth and structure of every known plant and animal, entering into the bones of every animal and the make-up of every plant. One hundred bushels of corn must have 23 pounds of phosphorus, and of this 17 pounds go into the grain and 6 pounds into the stalks. Fifty bushels of wheat require 16 pounds of phosporous, 12 pounds for the grain and 4 pounds for the straw. Four tons of clover require 20 pounds of phosphorus. These figures are mathematical and chemical facts. Phosphorus is removed from the soil and carried away from your land in your grain sold, in the bones of your cattle, in your hay and all other crops. **This constant yearly removal of the phosphorus diminishes each year** the total amount of phosphorus in each acre of your land and the number of bushels of corn, of wheat, of hay, and all other crops produced grows less each year. To supply ten acres of your land with enough phosphorus to make a 100-bushel corn crop per acre, per year, would require 250 pounds of phosphate. This 250 pounds of phosphorus can be bought in one ton of fine ground phosphate for about $8.00. In one ton of steamed bone meal the 250 pounds of phosphate costs $25.00; in two tons of acid phosphate the 250 pounds costs $30.00; in four tons of complete fertilizer the same 250 pounds of phosphorus costs $80.00 to $100.00.

Acid phosphate is made by simply mixing the ground phosphate rock with sulphuric acid. This makes the phosphate more quickly available to the plants, but in the long run, especially if applied heavily and without other ingredients to neutralize the acidity, acid phosphate would tend to make the land sour. Untreated phosphate rock is much slower in its action than the acid, probably requiring five or six years to become entirely available; for this reason, when it is necessary to obtain immediate results with the phosphate, we advise either applying nine hundred pounds untreated phosphate rock and one hundred pounds acid phosphate, or else using Basic Slag.

In this way you will obtain immediate results, and you will not make your ground acid. We do not advise sowing untreated phosphate rock on ground that is not fairly well supplied with humus unless you expect to plow under manure or a crop of clover with the phosphate. Humus in any form liberates the phosphate quickly, but the phosphate applied to worn soils lacking in humus will be quite slow in becoming available.

We are handling a brand of untreated rock phosphate which we believe to be the very best that is on the market and which we can furnish to Ohio customers. It costs a trifle more than some other brands, but we believe the best pays. Write for prices in car lots or any desired amount. We guarantee 12½ per cent. phosphate; 60 per cent. will pass a 100-mesh screen; 85 per cent. an 80-mesh screen. We ship either in paper-lined cars loaded loose, or in bags, as desired. It is a little cheaper in the paper-lined cars, and there is no waste in shipping.

Produce of One Ton of Manure Seven Years Average Results.



Produce of one ton of untreated yard manure; wheat 1.04 bu., corn 1.86 bu., hay 51 lbs.

Produce of one ton of untreated stall manure; wheat 1.26 bu., corn 2.47 bu., hay 101 lbs.

Produc of one ton of stall manure treated with floats; wheat 1.95 bu., corn 3.15 bu., hay 268 lbs.

BASIC SLAG

Basic Slag, sometimes called Thomas Phosphate Powder, is a fertilizer containing 16 to 19 per cent. phosphoric acid, 35 to 50 per cent. lime, 5 to 6 per cent. magnesia. This fertilizer can be strongly recommended on soils that are already acid, and soils that are likely to become acid. The phosphate is readily available, and there is no acid about the fertilizer, as there is to acid phosphate. The lime is also readily available, and will correct acidity in the soil. We have recommended this fertilizer for years, and have heard nothing but favorable reports from its use. While it costs a few dollars more per ton than acid phosphate, we think that considering the fact that it sweetens the soil instead of making it more acid, and also considering the large amount of available phosphate, 15 to 16 per cent., that the fertilizer is well worth the money. We can furnish this fertilizer to customers in Ohio,and can ship either from our warehouse or from Baltimore. Where purchased in car lots, it would be better to ship from Baltimore, Md.

To our customers living out of the state of Ohio, we recommend the Coe-Mortimer Co., No. 24 Stone St., New York, as a reliable source from which to procure basic slag.

Sow not less than 1000 lbs. basic slag to the acre. This fertilizer may be applied at the time of seeding, and may also be applied as a top dressing to crops in spring and fall.

Prices on basic slag are as follows: Car lots f. o. b. Baltimore, $15.50 per ton; less than car lots f. o. b. Mechanicsburg, $20.50 per ton. In 200 lb. bags.

THE MINIMUM WEIGHT OF A CAR OF FERTILIZER IS 40,000 LBS.

CATALPAS

We are sure that every farmer who reads our catalogue is progressive, and all progressive farmers today are interested in tree planting. One of the most remarkable trees known in the United States is the Catalpa. It grows as fast as any other tree that we have, and is extremely durable, making the best of fence posts, telephone poles, etc. Our neighbor, H. C. Rogers, has studied these trees for some years, and is growing the true Catalpa Speciosa in his nursery. If you will write to him for his booklet, he can tell you some very interesting things about this tree. Address H. C. Rogers, Box B., Mechanicsburg, Ohio.

FRESH OR AIR DRY SUBSTANCE

Hay and Dry Coarse Fodder	Water %	Protein %	Fat %	Carbo-hydrates %	Fiber %	Ash %
Legumes						
Alfalfa, 1	8.4	14.3	2.2	42.7	25.0	7.4
Clover, medium, 1	20.8	12.4	4.5	33.8	21.9	6.6
Clover, mammoth, 2	21.2	10.7	3.9	33.6	24.5	6.1
Clover, alsike 1	9.7	12.8	2.9	40.7	25.6	8.3
Clover, white 1	9.7	15.7	2.9	39.3	24.1	8.3
Clover, crimson 1	9.6	15.2	2.8	36.6	27.2	8.6
Beans, soy, average 1	11.3	15.4	5.2	38.6	22.3	7.2
Cow pea, 1	10.7	16.6	2.9	42.2	20.1	7.5
Vetches 1	11.3	17.0	2.3	36.1	25.4	7.9
Other Forage Plants						
Barley, cut in milk 2	15.0	8.8	2.4	44.9	24.7	4.2
Oats, cut in milk 2	15.0	9.3	2.3	39.0	29.2	5.2
Canada Blue Grass 3	14.3	7.6	3.2	50.1	17.9	6.7
Tall Meadow Oat Grass, 3	14.3	10.8	2.4	42.8	24.3	7.2
Timothy, cut soon after bloom 1	14.2	5.7	3.0	44.6	28.1	4.4
Perennial rye grass 2	14.0	10.1	2.1	40.5	25.4	7.9
Kentucky blue grass, cut with seed in milk 1	24.4	6.3	3.6	34.2	24.5	7.0
Meadow fescue 1	20.0	7.0	2.7	38.4	25.9	6.8
Orchard grass 1	9.9	8.1	2.6	41.0	32.4	6.0
Red top, cut in bloom 1	8.7	8.0	2.1	46.4	29.9	4.9
Sheep's fescue 3	14.3	5.6	3.6			4.3
German millet 3	7.6	7.4	2.1	49.0	27.7	5.9
Hungarian millet 3	7.6	7.4	2.1	49.0	27.7	5.9
Pearl millet 3	8.1	7.4	0.8	45.6	31.5	6.5
Bromus Inermis 5	25.4	6.0	1.8			
Green Fodder						
Corn fodder 3	79.3	1.8	0.5	12.1	4.9	1.1
Sugar Cane 2	79.4	1.3	0.5	11.6	6.1	1.1
Japanese millet 2	75.0	2.1	0.5	13.1	7.8	1.5
Red fescue, in bloom 5	61.0	3.5	0.5	21.0	11.1	2.1
Perennial rye grass, in bloom, 3	74.0	2.8	0.9	14.7	5.3	2.0
Kentucky blue grass, in bloom 3	76.7	4.6	1.1	11.3	4.2	1.8
Meadow fescue, in bloom 3	69.8	2.7	0.8	14.2	10.5	1.8
Orchard grass, in bloom 3	77.3	2.1	0.7	12.2	5.7	1.8
Red top, in bloom 3	61.4	4.2	1.1	21.9	8.5	2.8
Sheep's Fescue 3	53.7	4.5		26.9	11.0	2.5
Legumes			1.1			
Alfalfa, in bloom 3	70.1	5.0	0.8	15.3	6.6	2.0
Clover, medium, in bloom 3	72.7	4.3	0.9	13.4	6.5	2.2
Clover, alsike, in bloom 3	74.7	3.8	0.9	11.1	7.3	1.9
Clover, white, in bloom 3	78.2	4.4	1.4	9.4	4.7	1.7
Clover, sweet, in bloom 3	76.5	2.7	0.4	12.0	6.5	1.6
Soy beans, 3	74.8	2.9	0.9	11.5	7.2	2.3
Cowpeas, 3	83.5	2.3	0.4	7.1	4.7	1.7
Grains and Seeds						
Beans, Soy 4	7.7	35.4	20.3	26.1	4.6	5.7
Cow peas, 1	11.9	23.5	1.7	55.7	3.8	3.4
Barley 1	10.9	12.4	1.8	69.8	2.7	2.4
Corn 1	10.9	10.5	5.4	69.6	2.1	1.5
Oats 1	11.0	11.8	5.0	59.7	9.5	3.0
Wheat, 1	10.5	11.9	2.1	71.9	1.8	1.8
Rye 1	11.6	10.6	1.7	72.5	1.7	1.9
Buckwheat 1	12.6	10.0	2.2	64.5	8.7	2.0
Waste Products						
Wheat bran 1	11.9	15.4	4.0	53.9	9.0	5.8
Linseed oil meal, old process 1	9.2	32.9	7.9	35.4	8.9	5.7
Cottonseed meal 1	8.2	42.3	13.1	23.6	5.6	7.2

1—U. S. Department of Agriculture Farmers' Bulletin 22.

2—Feeds and Feeding—Henry.

3—U. S. Department of Agricultural Experiment Station Bulletin 11.

4—U. S. Department of Agriculture, Farmers' Bulletin 372.

5—U. S. Department of Agricultural Statistics, given us personally not published.

LIST OF LIME MANUFACTURERS

Chewacla Lime Co., Calcis, Ala.
B. E. Bowden, Calera, Ala.
C. L. O'Neal, Calera, Ala.
Shelby Lime Co., Calera, Ala.
Birmingham Cement Co., Ensley, Ala.
Standard Lime Co., Payne, Ala.
Hurt & Co., Lime Rock, Ala.
J. B. Adams, Long View, Ala.
Long View Lime Works, Long View, Ala.
Alba Lime Co., Farmington, Ark.
Ozark White Lime Co., Fayetteville, Ark.
Crescent White Lime Works, Johnson, Ark.
New England Lime, Brookfield, Conn.
Anchor Lime Co., Canaan, Conn.
The Stearns Lime Co., Danbury, Conn.
*Charles Warner Co., Cedar Hollow Plant, ft. Market St., Wilmington, Del.
*Charles Warner, Co., Keystone Plant, ft. Market St., Wilmington, Del.
*Charles Warner Co., McCoy Plant, ft. Market St., Wilmington, Del.
*Charles Warner Co., Whiteland Plant, ft. Market St., Wilmington, Del.
Chas. Warner Co., Wilmington, Del.
Florida Lime Co., Ocala, Fla.
Ladd Lime Co., Cartersville, Ga.
Sciple Sons, 8 Central Ave., Atlanta, Ga.
M. M. Church, Graysville, Ga.
Southern Lime Co., Arragon, Ga.
Cable Lime Co., Delphi, Ind.
Eichel Lime & Stone Co., Eichel Bldg., Evansville, Ind.
Wm. Moellerings Sons, 53 Murray St., Fort Wayne, Ind.
Saskalla Stone & Lime Co., Greencastle, Ind.
Western Lime Co., Huntington, Ind.
A. & C. Stone & Lime Co., Washington St. and Belt Ry., Indianapolis, Ind.
W. B. Keyport & Co., Logansport, Ind.
Mitchell Lime Co., Mitchell, Ind.
Reimon & Steeg Co., 901 Wabash St., Terre Haute, Ind.
Des Moines Fuel & Lime Co., 511 Mulberry St., Des Moines, Iowa.
Mason City Lime & Cement Co., Mason City, Iowa.
Iowa Lime Co., Viola Iowa.
Artesian Stone & Lime Works, Grand and Campbell Ave., Chicago, Ill.
*Southern Illinois Penitentiary, Menard, Ill.
Southwestern Contracting & Engineering Co., East St. Louis, Ill.
The Curry Fertilizer Co., Louisville, Ky.
C. C. Cook, Bowling Green, Ky.
Limestone Mining & Mfg. Co., Ashland, Ky.
Dickinson Bros., Glasgow, Ky.
P. A. Blackwell & Co., Henderson, Ky.
Union Cement & Lime Co., 421 W. Main St., Louisville, Ky.
Utica Lime Co., 421 W. Main St., Louisville, Ky.
Kruger & Sons, Mt. Vernon, Ky.
Louisiana Lime Co., New Orleans, La.
Fiske Homes & Co., 164 Devonshire St., Boston, Mass.
Lee Lime Co., Lee, Mass.
Alpena Lime Works, Alpena, Mich.
Northwestern Lime, Co., 71 Lower Levee St., St. Paul Minn.
Shakopee Cement & Lime Mfg. Co., Shakopee, Minn.
H. J. Willis, 2d and Main Sts., Winona, Minn.
*Crystal Lime & Carbonate Co., Ellsberry, Missouri.
*Superior Crushed Limestone Co., Carthage, Missouri.
Ash Grove Lime & Portland Cement Co., Ash Grove, Mo.
Casper Stolle Quarry & Contracting Co., St. Louis, Mo.
Crystal Carbonate Lime Co., Ellsberry, Mo.
Western Crushed Limestone Co., Carthage, Mo.
Rockland-Rockport Lime Co., Camden, Maine.
A. D. Bird & Co., 575 Main St., Rockland, Maine.
Maryland Lime & Cement Co., Caroll Bldg., Baltimore, Md.
*Standard Lime & Stone Co., Equitable Bldg., Baltimore, Md.
Baltimore Pulverizing Co., Baltimore, Md.
Grove Lime Co., Frederick, Md.
Superior Lime Co., Texas, Md.
Tabler Lime & Stone Co., Frederick, Md.
Camden Lime Co., 12th and Federal Sts., Camden, N. J.
Windsor Lime Co., Hamburg, N. J.
New Jersey Lime Co., McAlfee Valley, N. J.
Barclay S. Smith, Camden, N. J.
*Geo. A. Bush, Rahway, N. J.
Rochester Lime Co., 209 W. Main St., Rochester, N. Y.
C. H. Coons, Germantown, N. Y.
*F. E. Conley Stone Co., Utica, N. Y.
Catlin & Miller, Owego, N. Y.
John Heimlich, Le Roy, N. Y.
Genesee Lime Co., Honeoye Falls, N. Y.
New York Lime Co., Carthage, N. Y.
Beaver Creek Lime Co., Kinston, N. C.
*Bellevue Stone Co., Bellevue, Ohio.
*Kelly Island Lime & Transport Co., Rockefeller Bldg., Cleveland, Ohio.
J. H. Conklin, Gilbert Ave. and Court St., Cincinnati, Ohio.
Ohio & Western Lime Co., Sugar Ridge, Ohio.
*The John D. Owens & Son Co., Owens, Ohio.
*The France Lime Co., Bloomville, Ohio.
Ohio & Western Lime Co., Fostoria, Ohio.

***Handle ground limestone rock.**

*Casparis Stone Co., Columbus, Ohio.
*Bellefonte Lime Co., Bellefonte, Pa.
Easton Lime Co., Easton, Pa.
Knickerbocker Lime Co., Frazer, Pa.
*Knickerbocker Lime Co., 366 N. 44th St., Philadelphia, Pa.
Thos. Robinson & Co., 1404 Real Est. Trust Bldg., Philadelphia, Pa.
A. G. Morris & Son, 611 Empire Bldg., Pittsburg, Pa.
C. & W. H. Carson, Plymouth Meeting, Pa.
Todd & Son, Port Kennedy, Pa.
Pearson Plaster & Supply Co., 121 Green Ridge St., Scranton, Pa.
York Valley Lime Co., Howard and Mason Aves., York, Pa.
M. E. Reeder, Muncy, Pa.
Carroll & Co., Gaffney, S. C.
W. H. Richardson & Co., Gaffney, S. C.
Lime Stone Springs & Lime Co., Spartanburg, S. C.
Gager Lime & Mfg. Co., Chamberlain Bldg., Chattanooga, Tenn.
Tenn. Marble Lime Co., Houston Bldg., Knoxville, Tenn.
Wright Lime & Cement Co., 38 S. Third street, Memphis, Tenn.
Tennessee Cement & Lime Co., 243½ 4th Ave., N., Nashville, Tenn.
Gager Lime & Mfg. Co., Sherwood, Tenn.
Acme Cement & Plaster Co., Acme, Tex.
Austin White Lime Co., Acme, Tex.
Ft. Worth Lime Works, Pine & Kennedy St., Ft. Worth, Tex.
Wm. Walsh & Co., Round Rock, Tex.
Brandon Lime & Marble Co., Leicester Junction, Vt.
H. C. Palmer, New Haven, Vt.
E. Dillon's Sons, Indian Rock, Va.
Riverton Lime Co., Riverton, Va.
A. S. Lees & Sons Co., 108 S. 13th St., Richmond, Va.
Fellsworth Lime Works, Staunton, Va.
M. J. Grove Lime Co., Stephens City, Va.
Eureka Lime Co., Vicar Switch, Va.
Powhattan Lime Co., Strasburg, Va.
Arthur F. Garber, Marble Valley, Va.
T. C. Andrews & Co., Norfolk, Va.
Milwaukee Falls Lime Co., Humboldt Ave., Milwaukee, Wis.
Sheboyan Lime Works, Sheboyan, Wis.
Standard Lime & Stone Co., Buckhorn, W. Va.
Greenbrier Portland Cement Co., Fort Spring, W. Va.
Washington Bldg. Lime Co., Bakerton, W. Va.
Standard Lime & Stone Co., Martinsburg, W. Va.
Virginia Lime & Cement Co., Parsons, W. Va.
Standard Lime & Stone Co., Kearneysville, W. Va.
Harper's Ferry Lime Co., Millville, W. Va.
Berkley Lime Stone Co., Martinsburg, W. Va.

***Handle ground limestone rock.**

GARDEN SEEDS

FREE PACKAGE OF IMPORTED PANSY SEED—With every $1.00 purchase of garden or flower seeds, we give a packet of our superior pansy seed. This seed was imported for us from Holland, and is composed of the most beautiful strains of this favorite flower. Only one premium goes to a purchaser.

Prices quoted are postpaid. If one pound or more of any vegetable seeds are ordered sent by freight or express at purchaser's expense, deduct 8c per pound from price in our price list.

BEANS

Price on all Beans pkt. 15c; pt. 25c; qt. 45c.

BEANS, DWARF OR BUSH

1 Quart to 100 Feet in Drills; 2 Bushels per acre in Drills.

Culture—Succession of sowings may be made from first of May until September in latitude of New York, earlier south of this and later north Sow in drills about 2 inches deep, and from 2 to 3 feet apart.

BUTTER OR WAX VARIETIES

Black German Wax—Very early, round yellow pods. Well known and favorite variety.

Davis Kidney Wax—Very long, straight white pods. Exceedingly productive.

Golden Wax—Well known and popular standard kind.

Kidney Wax (Wardell's)—Extra early, very free from rust, long, flat, purely wax pods.

GREEN PODDED DWARF BEANS

Burpee's Bush Lima—A very valuable variety. Beans very large, fully equal in flavor to the Large Pole Limas, bushes from 18 to 20 inches high. Plants erect, sturdy and branching, immense yielders, each bush bearing from 50 to 100 large, well-filled pods.

Burpee's Stringless Green Pood—Extra early, quite stringless, crisp, tender, and of excellent quality.

Henderson's Bush Lima—Very early, and extremely productive. Beans smaller than Burpee's or Dreers.

Horticultural Dwarf—This is a favorite in New England. Late and productive.

Early Red Valentine—Very early snap variety. One of the most popular round pod beans.

POLE OR RUNNING VARIETIES

1 Quart to 150 Hills; 10 to 12 Quarts per Acre in Drills.

Culture—The pole varieties are more tender than the bush varieties, and cannot be planted so early. After weather is warm and settled, set poles in rows 4 feet apart, the poles being 3 feet apart in the rows. Plant 5 or 6 beans around each stake, and thin to 4 plants.

Dreer's Golden Cluster Wax—Early and productive. Golden yellow pods 6 to 8 inches long, white seeds.

Horticultural or Cranberry—Excellent either as a snap or string variety.

Kentucky Wonder—Early and productive. Absolutely stringless green pods.

Large White Lima—(Extra Size)—Extra large variety of the standard Limas. Beans very large. Selected stock.

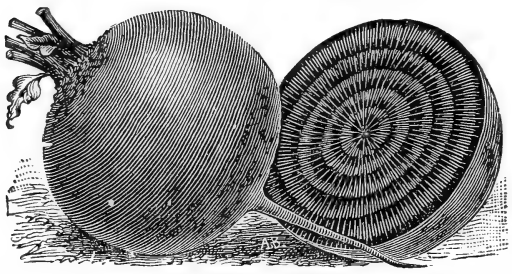
Lazy Wife's—An enormous yielder. Green, quite stringless pods, white seed.

Red Speckled or Cut Short—A good speckled variety to plant in corn.

BEET

Price on all Beets, including Mangel Wurtzel and Sugar Beets, pkt. 5c; oz. 10c; ¼ lb. 15c.

1 oz to 50 Feet Drill; 5 to 6 Pounds to the Acre in Drills.



ECLIPSE BEET

Culture—For early vegetables sow in spring as soon as the ground can be worked, in drills about 1 foot apart and 2 inches deep. For main crop sow first week in May; for winter, sow in June.

Crosby's Egyptian—Best for early market supply. As early and hardy as the original Egyptian, but of better quality, although not so well adapted for forcing in hot-beds and for transplanting. Color bright vermilion and very attractive.

Detroit Dark Red—One of the best for market gardeners and for home use. Excellent for canning. Round, dark red skin, light red, very sweet flesh.

Improved Early Blood Turnip—One of the best and most popular early kinds. Smooth and dark red; fine quality.

Eclipse Blood Turnip—Very early, smooth, round dark red, with very small top. One of the best for the market.

Half Long Blood—Fine, half-long, second early sort; good for winter use.

MANGEL WURTZEL AND SUGAR BEETS

Golden Tankard—Bright yellow, large, sweet and productive. Fine for sheep and cattle.

Long Red Mammoth Prize—One of the best. Of enormous size and excellent quality. Produces 30 to 50 tons to the acre.

Sugar, Giant Feeding—Said to be the best feeding variety. Roots of very high nutritive value.

CABBAGE

Price on all Cabbage except Danish Ball Head and Glory of Enkhuisen. Pkt. 5c; Oz. 20c; Danish Ball Head and Glory of Enkhuisen, Pkt. 5c; Oz. 30c.

1 oz. Seed Will Produce 3,000 Plants.

Culture—For early spring use sow in fall, not too early, and winter in cold frames. For late or winter crops sow in May, and set out the plants in July. They succeed best on rich, heavy loam.

All Seasons—Very deep heads. Can be planted for early or late crop. Excellent keeper. About as early as Early Summer, but with larger leaves.

Charleston Large Wakefield—About a week later than the Early Jersey Wakefield, with heads fully as solid, but much larger. Popular with market gardeners. Will not burst, and can be left standing in the field.

Danish Ball Head—One of the best winter varieties. Very solid, round heads.

Glory of Enkhuisen—A new, very desirable variety from Holland. Very large, solid, round heads of excellent flavor. A fine keeper. Very dwarf and compact, allowing of close planting. Quite uniform, and ideal for marketing.

Henderson's Early Summer—Large, early sort, with very compact round heads. About ten days later than Jersey Wakefield.

Henderson's Succession—One of the best. Very large, somewhat flat heads; about ten days earlier than Early Summer. Excellent kind for gardeners.

Select Early Jersey Wakefield—Very best early cabbage. Very large, conical head, compact and solid, fine texture, sweet and of excellent flavor. An excellent kind to winter over in cold frames. Our seed is imported, of extra fine quality.

Large Late Drumhead—Large headed, very fine fall and winter kind.

Rice's Premium Late Flat Dutch—One of the best. An excellent popular variety, much prized for market garden and family use.

Rice's Surehead—Best late cabbage. Reliable header, with few loose leaves. Excellent keeper and shipper. Fine market variety.

Vaughan's Winningstadt—One of the best and most reliable for early or late use. Sure to head. Conical head, very compact habit of growth, rendering it less liable to damage from cabbage worms.

CARROTS

Price on all Carrots Pkt. 5c; oz. 10c.

1 Ounce Will Sow 100 Feet of Drill; 3 Pounds Will Sow 1 Acre.

Culture—For gardens sow in drills about 18 inches apart. For field culture sow in drills from 3 to 3½ feet apart, so as to cultivate with horse. Soil should be good, light, well manured sandy loam, finely pulverized.

Danver's Half Long—One of the heaviest yielders, although the roots are shorter than some other varieties. Adapted to all classes of soils. Roots dark orange, 8 to 10 inches long, easy to harvest. First class kind, largely grown.

Improved Long Orange—The most popular and largely grown kind in cultivation. Fine for stock or table use. Roots dark orange, 12 to 15 inches long.

Oxheart—Short, thick roots, easy to harvest. Color, dark orange, sweet and fine in texture. Can be grown in hard stiff soil where longer kinds will not thrive.

NEW OXHEART OR GUERANDE

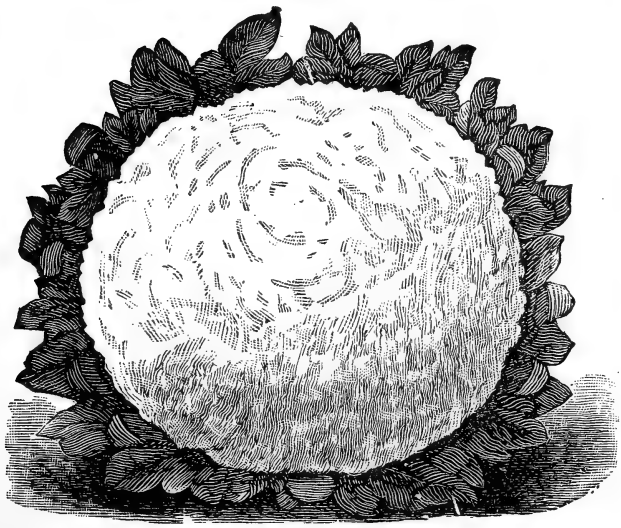
CAULIFLOWER

Price on Cauliflower, Pkt. 20c; Oz. $2.00.

1 Ounce Will Produce 3,000 Plants.

Culture—It requires a deep, rich soil, with plenty of moisture, which in very dry weather must be applied artificially. Cultivate as you would cabbage. For early fall crops, sow in May, and transplant in June, setting the plants 2 feet apart in rows 4 feet apart. Hoe frequently and feed with liberal applications of liquid manure, so that the plants will keep up a rapid, continuous growth. To facilitate bleaching, gather the leaves loosely together, and tie over the top of the head to protect from the sun. Cut before flowers begin to open. The seed may be sown as late as June 20th for late crops, in beds or hills, covering ½ inch deep.

Henderson's Early Snowball—Finest and earliest variety grown. Snow white heads of finest flavor.



CAULIFLOWER

CELERY

Prices on Celery: Dwarf Golden Self Blanchng, Pkt. 10c; Oz. 40c; Other Varieties Pkt. 5c; Oz. 20c.

1 Ounce Will Produce 7,000 Plants.

CELERY

Culture—Sow seeds in hot bed or cold frame. Transplant when the plants are 3 inches high, setting 4 to 5 nches apart. Set in the trenches when the plants are 8 inches high. Bank up a little during the summer, taking care to keep the stalks close together, so as to prevent the soil from getting between them. Finish earthing up in autumn. Never hoe or bank up in moist weather, or when the plants have dew on them. The trenches must have good drainage.

Improved White Plume—Well known and popular variety. Very early, ornamental, finest quality. Splendid early market sort.

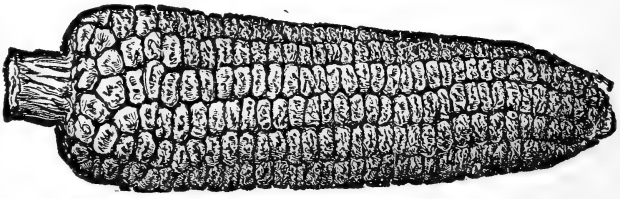
Dwarf Golden Self Blanching—Best early sort. Very solid, of finest flavor, good size, very crisp, tender and free from strings. A golden yellow color when blanched.

Giant Paschal—Largest variety grown. One of the best for fall and winter use. Blanches to a yellowish white, and has very fine nutty flavor. Much prized in the South.

CORN SWEET OR SUGAR

Price on all Sweet Corn, Pkt. 5c; Pt. 20c; Qt. 35c.
I Quart to 200 Hills; 1 Peck to the Acre in Hills.

Culture—For early supply begin planting early kinds about May 1st, and for continuous supply, make plantings at intervals of two weeks until the last of July, planting early kinds first, and following with later sorts. Plant in rows three feet apart with hills three feet apart in the rows. Plant 5 kernels to the hill and thin to 3 plants. Cover about an inch for early and a little deeper for late varieties.



EXTRA EARLY VARIETIES

Adams Extra Early—Not a sugar corn, but very early, and largely used for table corn, especially in the South.

Kendels Giant—Extremely early and very large. Quality good.

Early White Cory—One of the very best early kinds. Very large.

Peep O' Day—A new variety, very sweet, and a good yielder.

MEDIUM EARLY VARIETIES

Rice's Early Evergreen—An excellent kind. Ten days earlier than Stowell's Evergreen, and its equal in quality.

LATE VARIETIES

Black Mexican—One of the sweetest and best. Grains are black when ripe, but when in table condition cook very light.

Country Gentlemen—One of the best. Small cob, densely covered with deep irregular grains. Excellent quality.

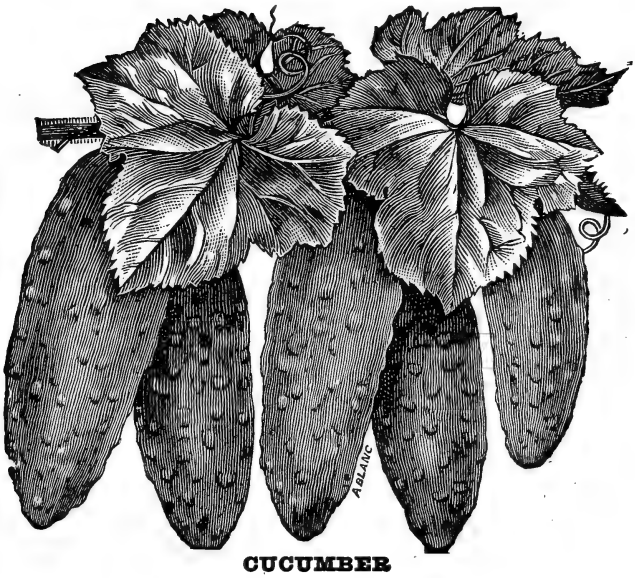
Stowell's Evergreen—The standard main crop variety. Hardy and productive, tender and sweet, remaining in condition for boiling for long time. Prized by canners and market men.

CORN, POP

Queen's Golden, Pkt. 10c; Pt. 20c; Qt. 35c.
White Rice, Pkt. 10c; Pt. 20c; Qt. 35c.

CUCUMBER

Prices on all Varieties, Pkt. 5c; Oz. 10c.
1 Ounce Will Plant 50 Hills; 1 Pound an Acre.



CUCUMBER

Culture—For early supply sow in hot bed or greenhouse during February or March, in soil about 90 degrees. Cover half an inch and transplant to hills in the greenhouse. Move to open ground when weather permits. For main supply, plant in open about the first of June, in hills 3 feet apart each way, leaving 3 plants to a hill.

Davis Perfect—New, dark green white spine.

Early Frame or Short Green—Very early, vigorous and productive. Fruit medium, good for pickling and slicing.

Long Green Improved—Fine for pickling, when small. Excellent for table use.

Westerfield's Chicago Pickle—Favorite with market gardeners and pickle manufacturers. Very prolific. Fruit medium, dark green, fine shape.

White Spine—One of the very best pickling cucumbers. Excellent for table use, very prolific, handsome shape, finest quality.

EGGPLANT

Pkt. 5c; Oz. 40c.
I Ounce Will Produce 1,000 Plants.

Culture—Sow in hot bed or warm greenhouse in March or April. When plants have formed two character leaves transplant two or three inches apart or to 2 inch pots. About June 1st, or when danger from cold nights is past, transplant to open ground, setting 2½ feet apart.

New York Improved Purple—The leading variety. Excellent in size, quality and productiveness.

ENDIVE

Pkt. 5c; Oz. 15c.

Culture—For early supply sow in April, and for main supply in June and July.

Broad Leaved Batavian—Large heads, broad thick leaves. Used for flavoring. The inner leaves may be used for salad if blanched.

Green Curled Winter—The hardiest. Dark green leaves, easily blanched. Excellent for salad. Useful for garnishing.

GOURDS

Pkt. 5c; Oz. 20c.
I Ounce Will Plant 25 Hills.

Culture—Do not plant until danger from frost is over. Plant 6 feet apart each way in rich soil, and leave 3 plants to a hill.

KALE

Pkt. 5c; Oz. 15c.
1 Ounce Will Produce 3,000 Plants.

Culture—Sow from middle of April to last half of May in prepared beds. Transplant in June, and treat like cabbage. Very tender and delicate.

Dwarf German Purple—Very hardy and of excellent quality. Extremely handsome.

Dwarf Green Curled Scotch—Low, compact, spreading plants of great beauty. Bright green leaves, curled so as to resemble moss.

LETTUCE

Pkt. 5c; Oz. 15c.

1 Ounce Seed to 100 Square Feet of Drill.

Culture—For main crop sow in spring as soon as ground can be worked, in rows, covering ¼ inch deep. Thin out to 4 inches apart, and as young plants grow and begin to crowd, thin out and use. For winter use sow in hot beds from November to February. Keep a moderate heat, and allow as much light and air as possible.

Big Boston—Excellent for forcing or open air cultivation. Large, solid heads.

California Cream Butter—Excellent summer variety. Good sized heads, with yellow leaves.

Crisp as Ice—Outside leaves dark brown and green, inside yellow.

Grand Rapids—Excellent for forcing and shipping.

Hanson Improved—One of the best later summer kinds. A favorite with market gardeners. Sure to form large, cabbage-like heads. Handsome outer leaves, green with light veins; inner leaves white.

Iceberg—New. Good sized, handsome heads, solid and of fine quality. Green slightly tinged with red.

Philadelphia Butter—Thick, round leaves, solid round heads, standing a long time before seeding. Inner leaves yellow. A favorite with market gardeners.

Prize-Head Early—Very thin, green and red leaves, crisp and tender. Fine for family use.

Silesia Early Curled—A good early variety for home use or market garden. Early, with yellowish-green, tender leaves.

Simpson Black Seeded—Very large, with golden yellow leaves. Superior kind.

Simpson Early Curled—Favorite early kind, good for forcing or open ground.

Wonderful—Mammoth heads. Fine keeper. Solid heart, light green in color, very sweet, tender and crisp. May be cut a long time.

MUSK MELON

Pkt. 5c; Oz. 15c.

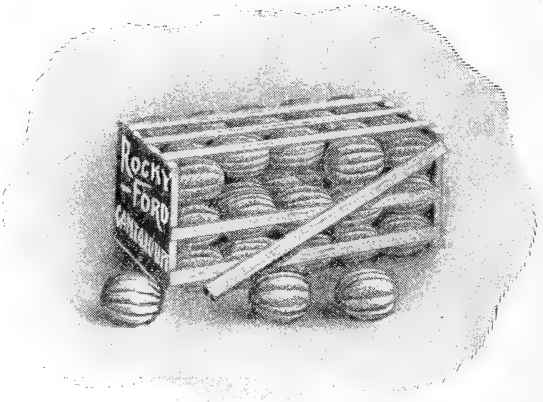
1 Ounce Seed Will Plant 80 Hills.

Culture—Plant when danger from frost is over in hills 5 to 6 feet apart, sowing about 12 seeds, and thinning to 3 or 4 plants. When 4 or 5 rough leaves have developed, pinch end off, which will strengthen the plant, causing it to branch, and will also hasten the maturing of the fruit. Should be planted in rich, well worked soil, well enriched with old manure.

Baltimore—One of the best green-fleshed melons. Medium sized, oblong, coarsely netted, very productive.

Banana Cantaloupe—From 2 to 2½ feet long, delicious flesh, deep salmon in color. A good seller.

Burpee's or Golden Netted Gem—Very early, almost round, dark green in color, thickly netted, with light green flesh of excellent flavor. Weight from 1½ to 2 lbs. A favorite with hotels and restaurants.



MUSK MELON

Burrell's Gem or Rocky Ford—Oranged-fleshed Rocky Ford, delicious.

Emerald Gem—One of the earliest. Small, emerald green fruit, with thick salmon colored flesh. Delicious flavor. Fine for hotels and restaurants.

Hackensack, Large Late—Very large fruit, round and flattened at the ends, large ribs, densely netted, flesh thick, very sweet and finely flavored.

Hackensack, Extra Early Improved—Two weeks earlier than the old Hackensack, but similar in shape and appearance. Excellent quality. Fine for gardeners.

Large Yellow Musk—Large, early and productive. Reddish-orange flesh of fine flavor.

Osage—Globe or egg-shaped, excellent flavor, dark green, very thick salmon colored flesh. A good yielder, and a favorite with the later markets. Fine for hotels and restaurants.

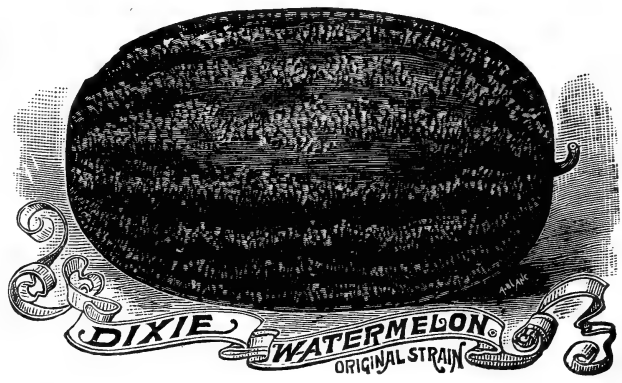
Rocky Ford—An improved, oblong form of the Netted Gem. Flesh green, and fine flavored.

Tiptop—Round to oblong. Pale green, handsomely netted, deep salmon flesh, sweet and finely flavored. A good keeper.

MELON, WATER

Pkt. 5c; Oz. 10c.
1 Ounce Seed Will Plant 50 Hills.

Culture—Plant in May, in hills 6 to 8 feet apart each way, 10 seeds to a hill, thinning to 3 plants. Soil should be light and moderately rich. Cultivate until vines cover ground, and pinch off end of plant, to induce early maturing of fruit.



Cole's Early—Very hardy, sure cropper, medium size, nearly round. Rind green striped, flesh dark red, very delicate and sweet.

Dixie—One of the best. Popular market variety. Fruit medium to large, long, with thin, tough rind, dark green striped lighter, flesh bright scarlet, sweet and deliciously flavored. Ripens earlier than most of the larger kinds, is an excellent shipper and productive.

Florida Favorite—Very large melon, of excellent quality. Large, oblong fruit, dark green striped, flesh bright scarlet, very firm and sweet.

Georgia Rattlesnake—A popular melon, and a favorite market kind. Oblong, large, striped, bright scarlet, very sweet flesh, nearly white seeds.

Ice Cream—One of the earliest, and one of the best for the North. Nearly round, light green, mottled, excellent flavor. White seeded.

Kolb Gem—One of the best shipping varieties. Most popular kind in the South. Dark green, mottled, nearly round, fine quality.

Monte Cristo or Kleckley's Sweet—Excellent for home use or nearby markets. Medium-sized fruit, oblong, tapering toward stem end, dark green, bright red flesh, sweet and tender.

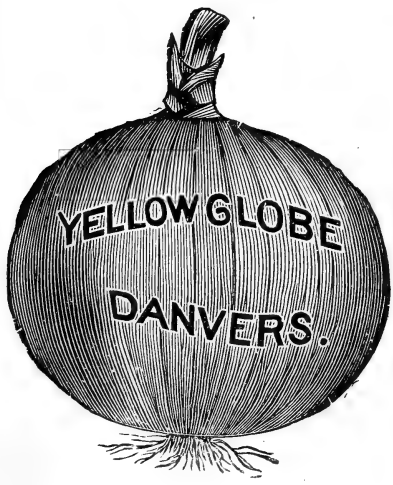
Peerless—Very early, and one of the best for the North. Rind light green, mottled, flesh firm and sweet. White seeded.

Sweetheart—One of the best. Round, very large, fruit bright green mottled, flesh bright red, firm but very sweet. An excellent shipper.

ONION

Price on all Onions except Southport White Globe, Pkt. 5c; Oz. 20c. Price on Southport White Globe, Pkt. 5c; Oz. 35c.

1 Ounce Will Plant 100 Feet Drill; 4 to 6 Pounds Seed 1 Acre; For Sets, 50 or 60 Pounds Per Acre.



Culture—Soil, rather deep, rich loam. Prepare ground the previous fall, by manuring heavily and plowing, leaving the ground in trenches all winter. It should not be tramped on. In spring level and firm soil. Sow seed thinly in drills about ¼ inch deep, and 1 foot apart. Use drill with roller, or roll with light hand roller after seed is sown. Thin young plants to 3 or 4 inches apart. Cultivate freely by hoeing.

Large Red Weatherfield—The standard red kind. Our seed is much superior to that usually sold. Finest form, purplish-red skin, finer grained than most red sorts. Immense crops of this onion are grown for shipment.

Southport Large Red Globe—Large, handsome, globe-shaped, purplish crimson. A good keeper, and a good seller, bringing high prices.

Southport Large Red Globe Selected—Grown from extra fine, hand selected bulbs.

Southport White Globe—One of the handsomest and best. Large, globe-shaped, clear white skin, mild flavor. A good keeper and seller. Always commands highest market price.

White Portugal or Silverskin—Medium-sized, flat, white, mild and agreeable in flavor. Hard, fine-grained, and good keeper. A favorite for bunching and pickling.

Yellow Globe Danvers—Handsome, good-sized, round onion, thin yellow skin, white flesh, firm and of excellent flavor and quality. Good keeper, fine for sets or large onions.

PARSNIP

Pkt. 5c; Oz. 10c.

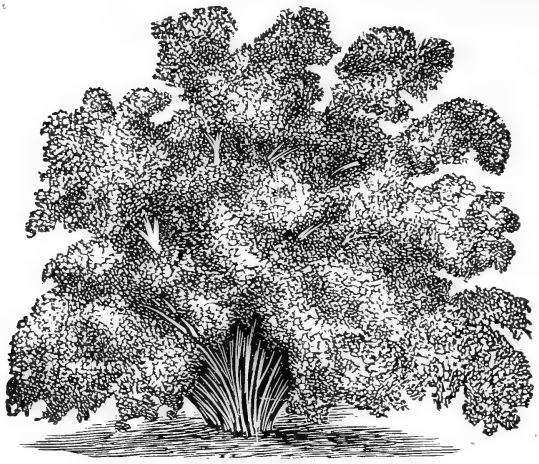
1 Ounce Seed to 200 Feet Drill; 5 to 6 Pounds in Drills Per Acre.

Culture—Sow in spring as early as weather will permit in rich ground, in drills 15 inches apart, covering ½ inch. Thin to 6 inches apart, and cultivate well. Improved by being left in ground during winter.

Guernsey—Roots of greater diameter than Hollow Crown, but not quite so long. An excellent variety.

Large Sugar or Hollow Crown—Standard sort. Root medium length, white, smooth, sweet and of excellent flavor.

PARSLEY



CHAMPION MOSS CURLED.

Pkt. 5c; Oz. 10c.

1 Ounce to 150 Ft. Drill.

Culture—Should be sown early in spring. Seed germinates very slowly, and is helped by soaking. Rich mellow soil. For general crop sow thickly in rows a foot apart and ½ inch deep. For winter use place in pots or boxes in the house.

Champion Moss Curled—Densely crimped and curled. Standard variety. Vigorous and desirable.

Fine Double Curled—Very fine. Beautiful dwarf variety.

PEAS

Price on All Peas Except Bliss American Wonder and Dwarf Telephone, Pkt. 10c; Pt. 30c; Qt. 50c. Bliss American Wonder, Pkt. 10c; Pt. 10c; Pt. 30c; Qt. 55c. Dwarf Telephone, Pkt. 10c; Pt. 30c; Qt. 60c.

1 Quart for 75 Ft. Drill; 2 to 3 Bushels in Drills Per Acre.

PEAS

Culture—For early supply sow early in the spring, and make sowings every two weeks for succession. For general crop, deep rich loam or clay is best. For early varieties use leaf mold; if soil is very poor, apply manure. For general crop use a good dressing, and for dwarf kinds you cannot have the soil too rich. For market crops peas are not staked, but grown in rows 3 to 4 inches deep, according to time, soil and variety. Wrinkled varieties are not so hardy as the smooth sorts, and are liable to rot, so if planted early, they should have warm dry soil, and not be planted too deeply. They are, however, the sweetest and best. Rows for planting should be 2½ to 3½ feet apart.

EXTRA EARLY DWARF PEAS

All marked thus (*) are wrinkled.

***Bliss American Wonder**—One of the earliest and most productive wrinkled sorts. Height ¾ feet.

***Extra Early Premium Gem**—An improvement on Little Gem. Height 1½ feet.

***Nott's Excelsior**—Very early and productive. Finest quality. Height 1¼ feet.

EXTRA EARLY PEAS—(Not Dwarf)

***Gradus or Prosperity**—Finest extra early Pea. Very large pods well filled with large peas of finest quality. Height 3 feet.

Alaska—Earliest blue pea. Popular with canners and market gardeners; very fine variety. Height 2½ ft.

First and Best—A standard variety. Very early and productive. Height 2½ feet.

SECOND EARLY PEAS

***Bliss Everbearing**—Fine long pods, fine flavor, good yielder. Height 2 feet.

***Dwarf Telephone**—One of the best new varieties. Large, well-filled pods. Fine flavor. Height 1½ feet.

PEPPER

Price on All Peppers except Chinese Giant, and Ruby King, Pkt. 5c; Oz. 25c. Chinese Giant, Pkt. 5c; Oz. 50c. Ruby King, Pkt. 5c; Oz. 30c.

1 Ounce Will Produce 2,000 Plants.

Culture—Sow in hot beds early in April, transplant to open ground when weather permits. May be sown in open ground when weather will allow. Soil should be warm and mellow. Rows 18 inches apart.

Chinese Giant—Mammoth size, fine shape, rich, glossy red flesh, mild and fine flavored. Strong, bushy plants, very productive.

Large Bell or Bull Nose—Early, large, mild and thick-skinned. Favorite pickling variety.

Long Red Cayenne—Bright red, very productive, very strong and pungent.

Red Chili—One of the most pungent. Very small bright red, cone shaped.

Ruby King—Best for market and family use. Mild red, sweet pepper, very large.

Sweet Mountain or Mammoth—Standard. Glossy red, thick and fleshy, large and mild. Fine for market gardeners.

PUMPKIN

Price on All Pumpkins except King of the Mammoths and Large Tours or Mammoth, Pkt. 5c; Oz. 10c; ¼ lb. 15c; lb. 40c. King of the Mammoths, Pkt. 5c; Oz. 10c; ¼ lb. 20c; lb. 50c. Large Tours or Mammoth, Pkt. 5c; Oz. 10c; ¼ lb. 15c; lb. 45c.

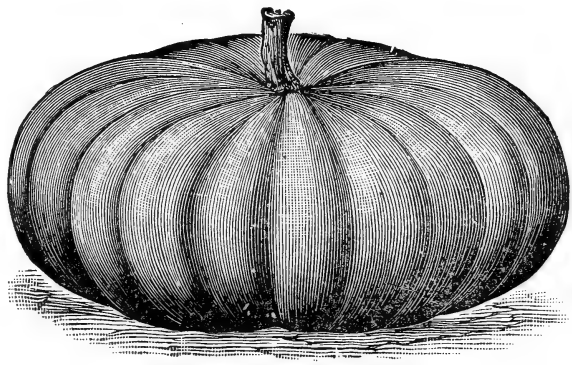
1 Pound Will Plant 200 to 300 Hills.

Culture—May be sown in corn, two or three seeds to every third or fourth hill. Or may be sown in hills 8 feet apart each way, 4 plants to the hill.

Connecticut Field—Largely used in the East as a field variety. Usually planted with corn.

Japanese Pie—Very fine, sweet, productive, early, delicious in flavor and fine in texture. Medium size, good keeper.

King of the Mammoths—Enormous size, sometimes weighing 250 lbs. Round, slightly ribbed, bright yellow. Grown mostly for stock, but makes excellent pies.



LARGE CHEESE OR KENTUCKY FIELD

Large Tours or Mammoth—Immense size, sometimes weighing 200 lbs. Oblong, used principally for stock.

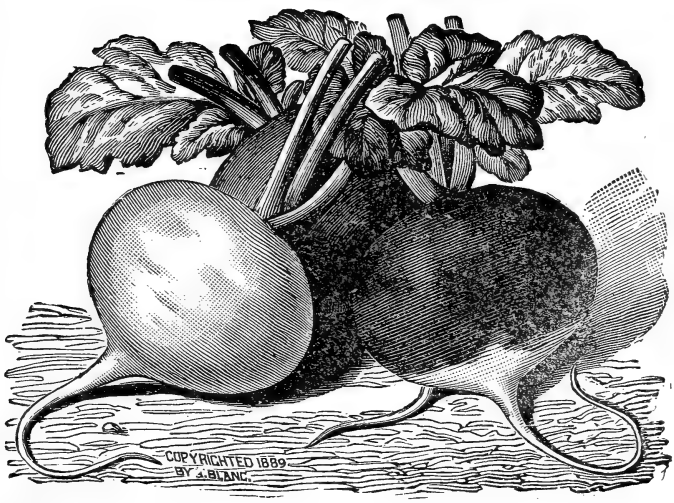
Large Cheese or Kentucky Field—Large, round, flat variety, very productive and of good quality. Orange flesh. One of the best.

Sweet or Sugar—Small, round, very productive. Orange yellow, sweet, fine-grained, and excellent for pies.

RADISH

Pkt. 5c; Oz. 10c.

1 Ounce to 100 Ft. Drill.



RADISH

Culture—For very early supply, sow in hotbeds in February, and move to open ground when ground can be worked. Sow at intervals of ten or twelve days for succession. Sow winter varieties in August, and store in cellar before frost.

Turnip, Crimson Giant—Very large, tender and crisp, never pithy. Suitable either for forcing or open ground.

Turnip, Early Scarlet—Standard variety, early and quick growing.

Turnip, Early Scarlet, White Tipped—Very early, round, bright scarlet, shading to white at bottom.

Turnip, Large White Summer—Very handsome, large round or turnip-shaped kind, pure white, crisp and fine. Excellent summer variety.

Turnip, Philadelphia White Box—One of the best for forcing; also good for outdoor culture. Round white radish, good-sized, very handsome, with short top. Crisp and tender.

Long Cincinnati Market—Finest long radish for forcing. An improved strain of Long Scarlet Short Top.

Long Icicle—Best white. Very early, transparent white, matures quickly.

Long Scarlet Short Top—Standard scarlet variety, brittle and crisp.

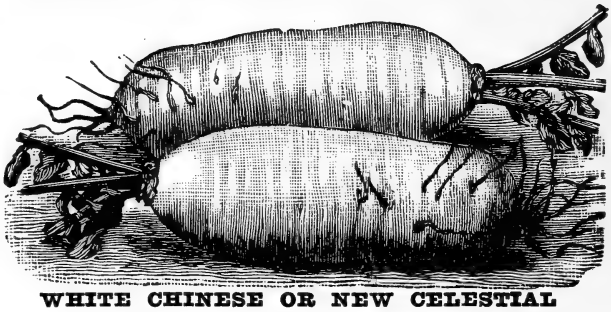
Long White Lady Finger—Beautiful shape, snow-white, juicy, crisp and tender. Best long white radish.

FALL OR WINTER RADISHES

Long Black Spanish—One of the best. Skin black, flesh white, firm and slightly pungent.

Long White Spanish—Resembles Long Black Spanish excepting in color, and is not quite so pungent.

Rose China Winter—One of the best, and a favorite with market men. Bright rose-colored skin, with white flesh.



WHITE CHINESE OR NEW CELESTIAL

White Chinese, or New Celestial—Can be used from the time it is 2½ or 3 inches long until it is 6 inches long. Can be sown from July 1st to August 15th. Very handsome, with solid, pure white flesh of good flavor.

SALSIFY

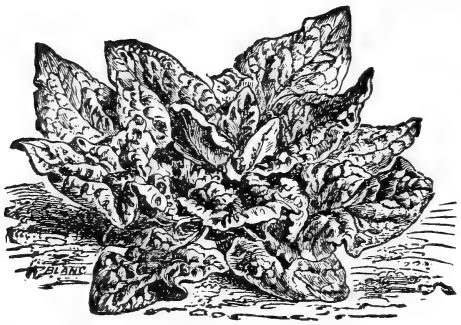
Pkt. 5c; Oz. 10c.

1 Ounce to 50 Ft. Drill.

Culture—Sow in spring, in drills 12 inches apart and 1 inch deep, thinning to 4 or 5 inches. May be left in ground all winter.

Mammoth Sandwich Island—The best. A splendid variety, very large, uniform, delicious flavor.

SPINACH



SPINACH

Pkt. 5c; Oz. 10c.

1 Oz. to 100 Ft. Drill; 10 to 12 Lbs. in Drills Per Acre.

Culture—Main crop is sown in September. For summer use sow at intervals of two to three weeks from April to August.

Bloomsdale, Savoy Leaved—Very productive and hardy. Crinkled leaves. Fine quality.

Long-Standing Thick-Leaved—Does not run to seed as soon as other kinds. Dark green. Imported seed.

Victoria—A little later than the Long Standing Thick Leaved. Dark green.

SQUASH

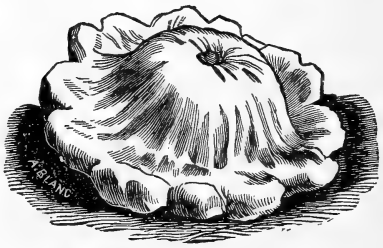
Pkt. 5c; Oz. 10c.

Culture—Sow in spring after ground is warm. Plant in hills 5 to 6 feet apart for bush varieties, and 6 to 8 feet apart for running varieties. Sow 7 or 8 seeds to a hill, and thin to 3 plants.

Boston Marrow—Oval form, thin skin, bright orange, with yellow flesh. Good size, excellent flavor. Keeps well. Fine for table or canning.

Early White Bush Scalloped—Good, standard summer variety.

Giant Summer Crookneck—Very large, thickly warted, handsome squash. A good seller, bringing high prices.



SQUASH

Improved Hubbard—The standard winter squash. Bluish green, flesh sweet, and finely flavored. Has a hard shell, and will keep all winter.

Warted Hubbard—Large, dark green, densely warted. Splendid quality, good keeper

SUNFLOWER

Pkt. 5c; ¼ Lb. 10c; Lb. 25c.

Mammoth Russian—The standard variety. Very large. Fine for poultry.

TOMATO

1 Ounce will Produce 1,500 Plants.

Culture—Sow seed in the hot bed in February, and at intervals until April. When plants are 2 inches high, transplant about 4 inches apart, and after 3 or 4 weeks transplant from hot house into cold frame. Plant in open ground about June 1st. Well enriched soil. Set 5 feet apart each way.

Acme—Well known, early kind. Smooth, uniform, purplish-red in color. Pkt. 5c; Oz. 20c.

Dwarf Champion—Early, with smooth, purplish-red fruit, plant compact and upright. Pkt. 5c; Oz. 25c.

Dwarf Stone—Early. Nearly twice as large as Dwarf Champion, better yielder. Pkt. 5c; Oz. 30c.

Earliana—Earliest smooth, bright red tomato. Large and very prolific. Pkt. 5c; Oz. 35c.

Livingston's Coreless—Large, main crop, bright red, globe shaped variety. Pkt. 5c; Oz. 40c.

Livingston's Globe—Large, firm, smooth, early tomato, rose tinged purple. Very productive and good. Pkt. 5c; Oz. 40c.

Matchless—Large, very solid, smooth and productive. Color cardinal red. Pkt. 5c; Oz. 20c.

New Stone—One of the best. Very large, being the heaviest and most solid of the large varieties. Round, apple-shaped fruit, very heavy, of fine quality. Pkt. 5c; Oz. 20c.

Ponderosa—Large, sometimes weighing 4 lbs., solid, finely flavored, bright red in color. Pkt. 5c; Oz. 45c.

TURNIP

Pkt. 5c; Oz. 10c.
1 Ounce Seed to 150 Ft. Drill; 2 Pounds Per Acre.

Culture—For early supply sow as soon as ground can be worked, in drills 15 inches apart, thinning to 8 inches. Sow at intervals of two weeks until the last of July, when sowing may be made for main crop.

Early Snowball—Medium-sized, pure white, round, early, and of fine quality.

Extra Early Purple-Top Milan—The earliest flat turnip. Medium size, white with purple top. Sweet and fine flavored. One of the best early.

Early White Flat Dutch—Very early, flat, white, very sweet and fine-grained. Fine in appearance.

Long White Cow Horn—Long. Grows quickly, partly above ground. A good variety. Flesh firm, fine-grained and sweet. Very productive.

Red, or Purple Top Strap Leaved—Best known popular variety. Large, flat, white, purple above ground. Grows rapidly. Good for winter use, or late planting.

Red Top White Globe—Like Purple Top Strap Leaved, excepting that it is almost round. Very large and productive.

RUTABAGA

Pkt. 5c; Oz. 10c.
1 Ounce to 150 Ft. Drill; 2 Pounds Per Acre.

Culture—Sow from June 20th to middle of July, in drills 2 feet apart. Thin to 10 inches between plants.

Improved American Purple Top—One of the best. Large bulbs, yellow flesh with purple crown, sweet and solid. Good for stock or table use.

White Sweet German—The very best for table use. Firm, white and sweet. Mild-flavored and fine-grained. Excellent keeper. Very large. Fine for stock .

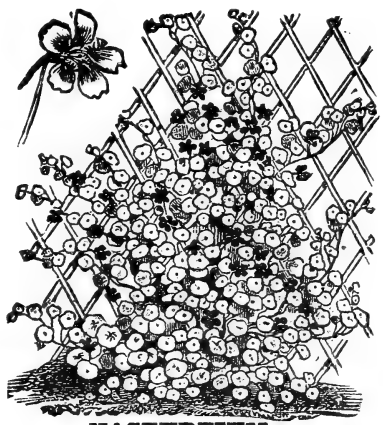
FLOWER SEEDS

Asters Mixed—Our seed is composed of the very best varieties of this beautiful annual. Pkt. 10c.

Nasturtiums, Dwarf Mixed—A mixture composed of the most beautiful colors. Pkt. 5c; Oz. 10c.

Nasturtiums, Tall Mixed—The finest colors mixed of the tall running nasturtiums. Pkt. 5c; Oz. 10c.

Sweet Peas, Eckford's Hybrids—Our seed comprises the most beautiful shades of this lovely flower, from the light dainty ones to the darker, richer colors. Pkt. 5c; Oz. 10c.



NASTURTIUM

I am well pleased with your wheat.—John Davidson, Ft. Recovery, Ohio.

The Gypsy wheat out-yielded Fulcaster, under identical conditions, fully 5 bushels per acre, and stood stormy weather before harvest much better. So far I am highly pleased with it.—R. G. Koiner, Staunton, Va.

This yield (20 1-3 bu.) was without fertilizer. Straw erect and free from rust, very nice grain. Over weighs to the stroked measure. Well pleased with the wheat and the deal with you.—Orion E. Michael, Dayton, Ohio. (Mr. Michael planted Gypsy wheat.)

Wheat looked greener than any wheat around here. Sold 85 bu. for seed at $1.50 per bu.—Clayton Mishler, Magadore, Ohio.

While my oats went down on some heavy manured spots, yet they stood better than any oats around here. Most of the oats in this section are Silver Mine and lodged bad this year. Mine out-yielded other oats cut here by about 5 bu. per acre. Was four to five days longer in maturing.—O. P. Shoots, Marion, Ohio. (Mr. Shoots planted Improved American.)

Best Oats crop we ever had and will want enough to seed 40 acres next spring. —A. R. Van Tassel, Hill Crest Farm, Du Bois, Pa. (Mr. Van Tassel planted Improved American.)

The Wing's 120 Day Yellow Corn I think is the best corn I have ever seen. Walter Williams, Caledonia, Ohio.

On Nov. 30th with ten ears of "White Cap" I won first prize at our Grange No. 1173 this county. Corn was well filled and of good type.—Haverford College Farm, Haverford, Pa.

I am going to plant mostly' "White Cap" next year.—B. B. Page, Rockford, Ills.

Planted two other kinds, one white cap and the other yellow. Yours was the best of all.—Chas. S. Haley, West Salem, Ohio. (Mr. Haley planted W. I. W. C.)

We have had several types and twenty-six varieties of corn in our six and one half acre test field, and the 120 day yellow was the earliest except one of the very best yielders.—J. Larkin Brouse, Eaton, Ohio. (Mr. Brouse planted Wing's 120 Day Yellow.)

The season was very dry and a drawback to my corn, but what did not go into the silo was the finest ears on the place. Well filled tips and butts.—T. Maxwell, Arnold, Pa. (Mr. Maxwell planted Reid's Yellow Dent.)

Yield per acre? 100 busheles. Better than your neighbors? Yes.—Charles R. Parker, South New Lyme, Ohio. (Mr. Parker planted W. I. W. C.)

I am very well pleased with your White Cap corn. Cut ten days earlier than my other corn. I will try it again.—Joe Campbell, Jonesboro, Tenn.

This was the best corn I had, and I used seed from several different localities. It made about twice as much corn as the seed I had raised myself.—E. C. Potts, Roosevelt, Okla. (Mr. Potts planted Reid's Yellow Dent and W. I. W. C.)

Very bad season for corn in this section. Some fields complete failure. I am very much pleased with the corn, and can safely say that I got over $200 more corn by planting "White Cap" than if I had planted my own.—A Rogers, Lambertville, New Jersey.

Soys make a good crop when cow peas failed planted side by side. I grew Medium Green.—Luther Shroyer, Cecil, W. Va.

I am experimenting with soy beans in renovating wornout land. Your mixed beans did well; will want more seed next year.—O. W. Caster, Carpenter, Ohio.

I bought a run down farm this spring; and there were six acres that did not have anything but a few weeds and golden rod. I did not get the beans in very early, but they grew fine, and I got a nice lot of hay from them.—Howard C. Patchen, Danbury, Conn.

DORSETS

There is a widespread and constantly increasing interest in this breed, and yet there being only a few thousand of the pure bred stock in the country many people have never seen them, and many more know little about them. For this reason we receive constant inquiries concerning them, so many that it is a good deal of work to answer them all. For the benefit of those who are not acquainted with the breed we give this description.

Typical Dorset Ewes

Dorset sheep are a mutton breed. In many ways they are not unlike the Shropshire, being of about the same size and form, shearing about the same, the wool being of a very good quality and selling at the highest price. As shearers they are classed with Downs. Both sexes have horns, those of the ewes being much lighter than the rams. These horns in animals that are well bred have usually a pleasing appearance, not at all resembling the ugly goat horns. Their possession is of great value to the sheep, making them fearless, and well able to protect themselves from dogs. A real sheep killing dog will kill a Dorset, but a dog that has never yet killed a sheep, but has aspirations, will never learn on this breed. Even a professional sheep killing dog will frequently be driven from the flock by Dorset rams.

The distinguishing characteristics of the breed is that they will lamb at any time of the year. Further, the ewes are great milkers, probably the heaviest of any breed, and their lambs will grow very rapidly, probably more so than any other breed. These characteristics place them far in the lead of any other breed for raising winter lambs, which is the most profitable branch of the sheep industry today.

To produce winter lambs, ewes are usually bred to drop lambs from October to January, the lambs are kept in reasonably warm sheds or barn, well fed and kept growing until they weigh about fifty pounds, which should be when they are about two months old, when they are sold to the cities, the price being as high as $12 each for good fat lambs.

For this business grade Dorset ewes are used, and pure bred Dorset sires. The breed is so prepotent that a three-fourth blood ewe will be fully as good as a pure bred one for this business.

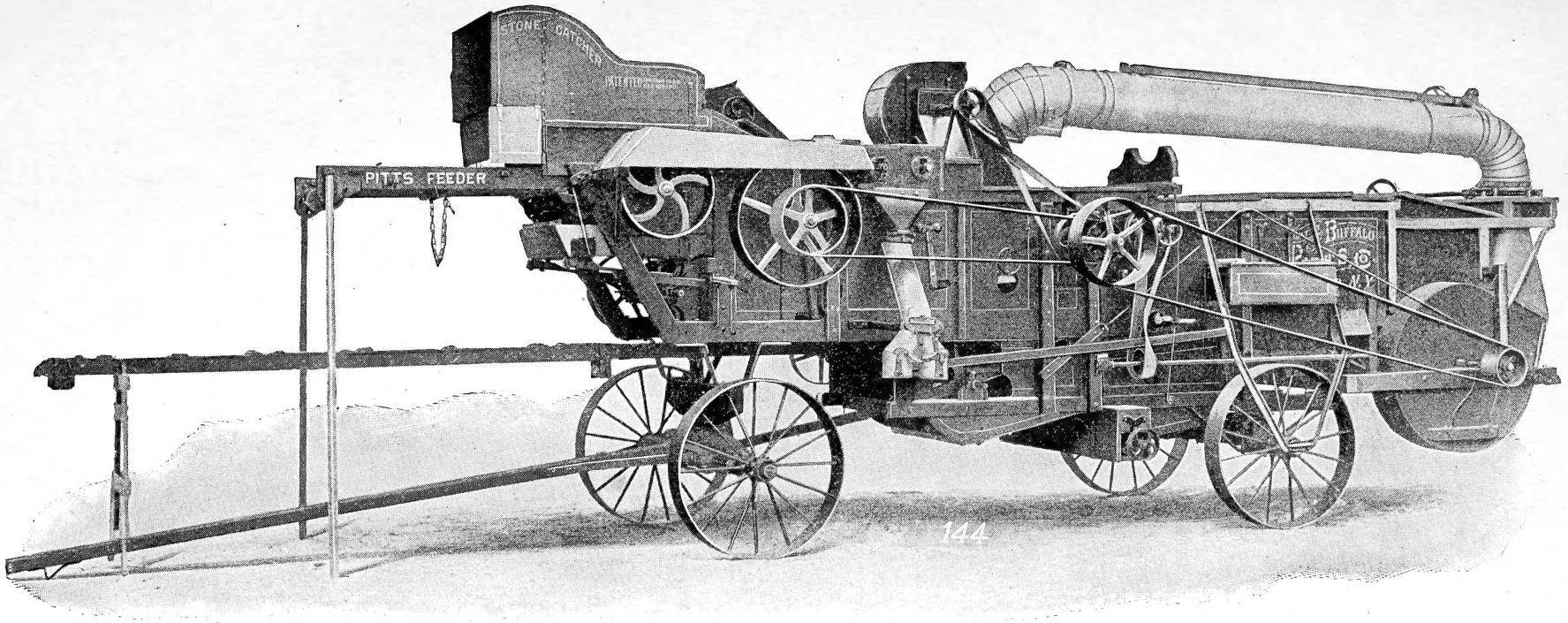
In starting with any breed of sheep there are always two considerations that should interest the buyer. The price at which he can dispose of his grade stock, and the price at which he can sell his pure bred animals. We have already spoken of the profits in selling winter lambs. We are confident there is no breed in which the pure bred animals sell more rapidly, or at a better price than this one. The lowest price at which any pure bred Dorset of either sex ever sells is above $15 and from that to $100 or over. Probably the average price for rams old enough for service is between $25 and $50, and for ewes old enough to breed $20 to $30. Even high grade ewes of good quality sell readily at $15 each.

All our Dorsets are registered in the Continental Dorset Club. With each animal sold we furnish promptly and free the Certificates of Registry and the Transfer of Ownership.

"Woodland Dorsets" are known wherever the breed has been heard of. We have sent rams to nearly every state in the United States, and have pleased customers wherever our sheep went. We will not sell a poor individual at any price, but should there be any dissatisfaction over any animal that we send out, we are always willing to do anything in reason to make the deal right.

For the past ten years the mating, rearing and selling of Woodland Dorsets has been entirely in my charge. I am rather proud of my record in this time, because during the entire ten years I have had only three complaints. Recently I bought out my brothers' interest in he flock. The policy of management will remain the same as in the past.

Signed, **CHAS. B. WING, Mgr. The Wing Seed Co.**



Buffalo Pitts Bean and Pea Thresher, with gearless wind stacker, self feeder stone extractor and recleaner attached.

This Machine will thresh any kind of Beans and Peas without cracking them.

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